

EPA Reg. No. 83222-22

Material to be added to an e-Jacket/Jacket

Reg. No. 83 222 - 22

Description: _____

1. ☐ Placement within the e-Jacket/jacket:

☒ Default: (chronological, top = newest)

☐ File Location: (PDF page number, i.e., "before page 45")

2. ☐ Send to Data Extraction contractors this material:

☐ Newly stamped accepted label

☒ Notification new alternate CSF

☒ New CSF

☐ Other: _____

3. Attach this coversheet to the top of the material or jacket. It must be well organized and clipped together, NOT STAPLED. Then give the material with this coversheet to staff in the Information Services Center (Room S-4900).

Reviewer's Name: Erin Malone

Phone: 703 347 - 0253 Division: RD/FB

Date: 5/19/11



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF
CHEMICAL SAFETY AND
POLLUTION PREVENTION

Jane M. Miller, Agent for
J. Oliver Products, LLC
c/o Biologic, Inc.
115 Obtuse Hill Road
Brookfield, CT 06804

Subject: Application for Pesticide Notification (PRN 98-10)
Submission date: 4/4/11
Product Name: Mepiquat Chloride 4.2%
EPA Reg. No.: 83222-22
EPA Decision Number: 448642

Dear Ms. Miller,

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action(s) requested falls within the scope of PRN 98-10.

The Agency acknowledges the alternate Confidential Statement of Formula due to an additional source of the active ingredient.

The CSF referred to above, submitted under the Federal Insecticide, Fungicide, and Rodenticide Act, is acceptable and will supersede all previously approved basic & alternate CSFs.

If you have questions concerning this letter, please contact Erin Malone at 703-347-0253 or me at 703-308-3194.

Sincerely,

A handwritten signature in black ink, which appears to read "Shaja B. Joyner", is written over the typed name.

Shaja B. Joyner
Product Manager 20
Fungicide Branch
Registration Division (7504P)

Receipt for Section 3

S: 894240

Resubmission: ☐ Yes ☒ No

Regulatory Type: Product Registration - Section 3

Fee For Service: ☐ Yes ☒ No

Application Type: Notification

Print Letter

Enter More Information

Tracking

Company: 83222 J. OLIVER PRODUCTS, LLC

V

Risk Manager: Registration Division, Risk Management Team 20

Product #: 83222-22

Product Name: MEPIQUAT CHLORIDE 4.2%

Override#:

Me Too Section3: 83520-2

Me Too Product Name: MEPIQUAT PGR

Application Date: 04-Apr-2011

OPP Rec'd Date: 20-Apr-2011

Front End Date: 20-Apr-2011

Risk Manager Send Date: 20-Apr-2011

FFS Due Date:

Negotiated Due Date:

OPP Target Date:

Fast Track: ☐

New Ingredient: ☐

Receipt Description:

Notification to add Sources of Active Ingredient

CSF Notif

Form A: ☐

Signature Date:

Form B: ☐

Signature Date:

View/Edit

Receipt Content	Des
Other	Notification to add so

New Ingredient Request Date:

New Ingredient Received Date:

I hereby approved.

April 4, 2011

Document Processing Desk (NOTIF)
Office of Pesticide Programs (7504P)
US Environmental Protection Agency
One Potomac Yard
2777 S. Crystal Drive
Room S-4900, 4th Floor
Arlington, VA 22202

Attention: Ms. Joyner (PM #20)

RE: "Mepiquat Chloride 4.2%", EPA Reg. No. 83222-22
Notification to add Sources of Active Ingredient

Dear Ms. Joyner:

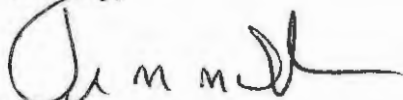
On behalf of J. Oliver Products, LLC please find enclosed an Application for Pesticide Notification to add an alternate formulation to the above-mentioned end-use product. The purpose of the alternate Confidential Statement of Formula is to add an alternate source of the registered active ingredient.

The following documents are enclosed to process this Notification:

1. Application for Pesticide Notification (EPA Form 8570-1)
2. EPA Formulator's Exemption Statement (EPA Form 8570-27)
3. One (1) copy of the proposed alternate formulation Confidential Statement of Formula #2 (EPA Form 8570-4)

Should you have any questions, or wish to reach me, please feel free to contact our office at 203-740-1200.

Sincerely,



Jane Miller
Agent to J. Oliver Products, LLC





United States
Environmental Protection Agency
Washington, DC 20460

☐
☐
☒

Registration
Amendment
Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 83222-22	2. EPA Product Manager Ms. Joyner	3. Proposed Classification <input type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Mepiquat Chloride 4.2%	PM# 20	
5. Name and Address of Applicant (Include ZIP Code) J. Oliver Products, LLC c/o Biologic, Inc. 115 Obtuse Hill Road Brookfield, CT 06804 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input checked="" type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

This is a notification to submit one alternate CSF with a new registered source of the active ingredient as per PR Notice 98-10. This notification is consistent with the provisions of PR Notice 98-10 and the EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____		
* Certification must be submitted		If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt.	No. per container
3. Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container		5. Location of Label Directions <input type="checkbox"/>	
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input type="checkbox"/> Other _____			

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)					
Name Jane M. Miller		Title Agent		Telephone No. (Include Area Code) (203) 740-1200	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.					6. Date Application Received (Stamped)
2. Signature 		3. Title Agent			
4. Typed Name Jane M. Miller		5. Date April 4, 2011			

United States

Washington, DC 20460

Applicant's Name and Address

J. Oliver Products, LLC
c/o Biologic, Inc.
115 Obtuse Hill Road
Brookfield, CT 06804

EPA File Symbol/Registration Number

83222-22

Product Name

Mepiquat Chloride 4.2%

Date of Confidential Statement of Formula (EPA Form 8570-4)

April 4, 2011

(1) This product contains the following active ingredient(s):

Mepiquat Chloride

(2) Of these, each active ingredient listed in paragraph (4) is present solely as the result of the use of that active ingredient in the manufacturing, formulation or repackaging another product which contains that active ingredient which is registered under FIFRA Section 3, is purchased by us from another producer, and is labeled for at least each use for which my product is proposed to be labeled.

(3) Indicate by checking (A) or (B) below which paragraph applies:

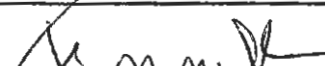
☒ (A) An accurate Confidential Statement of Formula (*EPA FORM 8570-4*) for the above identified product is attached to this statement. That formula statement indicates, by company name, registration number, and product name, the source of the active ingredient(s) listed in paragraph (1).

OR

☐ (B) The Confidential Statement of Formula (CSF) (EPA Form 8570-4) referenced above and on file with the EPA is complete, current, and accurate and contains the information required on the current CSF.

(4) The following active ingredients in this product qualify for the formulator's exemption.

Source

Active Ingredient	Product Name	Registration Number
Mepiquat Chloride Technical	<div data-bbox="560 1370 1506 1425" style="background-color: black; height: 85px; width: 100%;"></div> <div data-bbox="1024 1487 1045 1506" style="text-align: center;">+</div>	<div data-bbox="1521 1408 1542 1427" style="text-align: center;">+</div> <div data-bbox="1349 1421 1438 1793" style="text-align: center;"> <p>1 2 3 4 5 6 7 8 9 10 11 12</p> <p>1 2 3 4 5 6 7 8 9 10 11 12</p> <p>1 2 3 4 5 6 7 8 9 10 11 12</p> <p>1 2 3 4 5 6 7 8 9 10 11 12</p> <p>1 2 3 4 5 6 7 8 9 10 11 12</p> <p>1 2 3 4 5 6 7 8 9 10 11 12</p> <p>1 2 3 4 5 6 7 8 9 10 11 12</p> <p>1 2 3 4 5 6 7 8 9 10 11 12</p> </div>
Signature	Name and Title	Date
	Jane M. Miller, Agent	4/4/11

Product ingredient information may be entitled to confidential treatment

Material to be added to an e-Jacket/Jacket

Reg. No. 83222-22

Decision #s _____

Description: Final Accepted^{label} as requested
by Agency letter dated 02/23/2010

1. Placement within the e-Jacket/jacket:

- ☒ Default: (chronological, top = newest)
☐ File Location: (eg. "before page 45 in .pdf")

2. ☒ Send to Data Extraction contractors this material:

- ☒ Newly stamped accepted label
☐ Notification
☐ New CSF
☐ Other: _____

3. Attach this coversheet to the top of the material or jacket. It must be well organized and clipped together, NOT STAPLED. Then give the material with this coversheet to staff in the Information Services Center (Room S-4900).

Reviewer: Edom Seifu

Division: RD/FB

Phone: (703) 347-0103

Date: 01/04/2011

March 23, 2010

Document Processing Desk
Office of Pesticide Programs (7504P)
US Environmental Protection Agency
One Potomac Yard
2777 S. Crystal Drive
Room S-4900, 4th Floor
Arlington, VA 22202

Attention: Ms. Shaja B. Joyner (PM #20)
RE: Mepiquat Chloride 4.2%; EPA Reg. No. 83222-22
Final Labeling

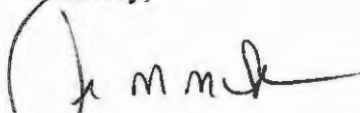
Dear Ms. Joyner:

As per the EPA Notice of Pesticide Registration Approval dated February 23, 2010,
please find enclosed the following:

1. One (1) copy of final labeling with the corrections made as requested by the Agency.

Should you have any questions, or wish to reach me, please feel free to contact our office
at 203-740-1200.

Sincerely,



Jane M. Miller
Agent to J. Oliver Products, LLC

(FRONT BOTTLE LABEL)

NOT REVIEWED
In Accordance with PR Notice 82-2
Based On Draft Labeling Dated
March 23, 2010

MEPIQUAT CHLORIDE 4.2%

Plant Growth Regulator

For Use On Cotton

Active Ingredient:

Mepiquat Chloride: N,N-dimethylpiperidinium chloride.....4.2%

Inert Ingredients:.....95.8%

Total.....100.0%

*Equivalent to 0.35 pounds of active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION

See inside booklet for complete **Precautionary Statements** and **Directions for Use**.

EPA Registration Number 83222-22

EPA Establishment Number

NET CONTENTS:

LOT NUMBER:

Manufactured By:

J. Oliver Products, LLC

3187 Robertson Gin Road

Hernando, MS 38632

(BOOKLET)

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Caution. Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing.

FIRST AID	
If in eyes:	Hold eyelid open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If swallowed:	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
If on skin or clothing:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Hot Line Number	
Have product container or label with you when calling a poison control center or doctor or going for treatment.	

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistant selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves (such as nitrile, butyl, neoprene and/or barrier laminate)
- Shoes plus socks

User Safety Requirements

Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls Statement

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticide [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of **12 hours**.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material.
- Shoes plus socks.

Storage and Disposal

Do not contaminate water, food or feed by storage and disposal.

Pesticide Storage: Do not store below 32° F or above 100° F. Store in a dry place away from heat or open flame.

Pesticide Disposal: Pesticide wastes are toxic. Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide spray mix, or rinsate is a violation of Federal law. If these wastes cannot be disposed of according to label instructions, contact the state agency responsible for pesticide regulation or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal: Nonrefillable Container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Then offer for recycling, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Containers 5 gallons or less: Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

I. GENERAL INFORMATION

MEPIQUAT CHLORIDE 4.2% is a foliar applied plant regulator that modifies the cotton plant in several beneficial ways. It allows the grower to manage the cotton plant for **short-season production** leading to reduced risk of yield and quality loss due to delayed and prolonged harvest. Additional benefits derived from the use of this product include:

- height reduction and more canopy
- better early boll retention and/or larger bolls
- less boll rot
- improved defoliation
- reduced trash and lower ginning costs
- better harvest efficiency
- darker green leaf color

These benefits can provide for earlier maturity and may result in improved yields.

Spray Coverage

Under most circumstances, water is the recommended diluent, however, oil is permitted in the following states for ultra low volume (ULV) aerial applications: Alabama, Arkansas, Florida, Georgia, Louisiana, Missouri, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas. Refer to **Air and Ground Application** sections for spray volumes.

Regardless of method or gallonage of application, thorough coverage of the cotton foliage is required.

Cleaning Application Equipment

Clean application equipment thoroughly using a strong detergent or commercial sprayer cleaner according to the manufacturer's directions before and after applying this product, particularly if a product with the potential to injure crops was used.

II. APPLICATION INSTRUCTIONS

Early Application

On both short-staple and Pima cotton, the grower has the option of low-rate multiple applications (see **Table 1**) or higher, less frequent applications (see **Table 2**) which greatly facilitates his management flexibility. The multiple application option gives the producer the ability to discontinue usage of **MEPIQUAT CHLORIDE 4.2%** if any significant stresses occur after an earlier application. In such a case, the total quantity of **MEPIQUAT CHLORIDE 4.2%** used over a season may be reduced. If stress is relieved, the grower has the option of continuing treatments with **MEPIQUAT CHLORIDE 4.2%**. In addition, the rate and timing ranges indicated in the **Application Rates and Timings Tables** allow the grower to tailor his usage of **MEPIQUAT CHLORIDE 4.2%** to the degree of vegetative vigor in a given field. In areas where insecticides, miticides or foliar fertilizers are frequently applied, the timings are such that tank mixing is often possible. (See section **VII. General Restrictions and Limitations**).

Fields should be carefully scouted and **MEPIQUAT CHLORIDE 4.2%** should not be applied if plants are under severe stress from weather factors, mite, insect or nematode damage, disease stress, herbicide injury, or fertility stress. In the absence of these stresses, up to 5 low-rate multiple applications can be made each season. After the first application (at matchhead square in the absence of stress), the rate and timing of subsequent applications will depend on vegetative vigor. Under good growing conditions, additional treatments should be made at 7-14 day intervals. However, if new growth at any time is excessive, higher rates of **MEPIQUAT CHLORIDE 4.2%** can be used. If significant loss of squares or young bolls has occurred earlier due to insect pressure or other stresses, but now these stresses have all been alleviated, the need for **MEPIQUAT CHLORIDE 4.2%** is increased – excess vegetative growth is likely because of poor boll load.

Late Season Application

Late application of **MEPIQUAT CHLORIDE 4.2%** (approximately during the fourth to sixth week of blooming) can provide certain benefits to cotton. However, it should not and does not substitute for early season use – the time of the greatest benefit from the use of **MEPIQUAT CHLORIDE 4.2%**. Late season application can lead to one or more of the following:

- reduction in late season vegetative growth or regrowth after cutout or defoliation
- more complete and manageable cutout
- better defoliation
- earlier maturity
- reduction in trash
- lower ginning costs

Some of these effects may favorably influence the yield potential and fiber quality. A late season application of **MEPIQUAT CHLORIDE 4.2%** should be applied only if fields are not

drought or nutrient stressed; that is, those fields likely to experience additional vegetative growth or regrowth. However, fields that are very rank and extremely vigorous due to a combination of poor boll load and excellent growing conditions may not respond as much as desired to late season applications at the specified rates.

Timing for Late Season Applications

- **On fields where cotton cuts out and then starts regrowth:** Apply when regrowth begins, as evidenced by new leaves in the terminal and stem elongation. This application time is often, but not always, 5-6 weeks after the first bloom.
- **On fields where cotton never completely cuts out:** Apply **MEPIQUAT CHLORIDE 4.2%** when there are 4-6 nodes above the white flower (NAWF). Measure NAWF by counting the number of mainstem nodes from the first position white bloom (the one closest to the mainstem) to the terminal. Count the node with the first position white bloom as zero and the last node in the terminal, which is counted, should have a leaf at least the size of a quarter. Generally, the NAWF first reaches 4-6 nodes during the fourth to sixth week of bloom.

During this time, the NAWF should be decreasing about one node every 5-6 days – if its rate of decrease is less, the plant is not cutting out soon enough (the crop is too vigorous). If the fifth week of bloom arrives and NAWF is still above 5-6, apply **MEPIQUAT CHLORIDE 4.2%**.

Use Rate for Late Season Application

Apply 8-24 fluid ounces of **MEPIQUAT CHLORIDE 4.2%** per acre. Use the lower rate on cotton with only moderate additional growth potential, and the higher rate on fields likely to continue vigorous growth.

AIR APPLICATION

Spray Volume

- **Water as Diluent:** Use a minimum of 2 gallons of water per acre in all states except California. In California, use a minimum of 5 gallons of water per acre.
- **Oil as Diluent:** Use a minimum of 1 quart of oil per acre. When using oil as a diluent, the oil concentrate must contain either a petroleum or vegetable oil base and must meet all of the following criteria:
 - be nonphytotoxic
 - contain only EPA-exempt ingredients
 - provide good mixing quality in the jar test
 - be successful in local experience

The exact composition of suitable products will vary; however, vegetable and petroleum oil concentrates should contain emulsifiers to provide good mixing quality. If the oil does not contain an emulsifier, one must be added during mixing at a volume equal to 3% of the final volume of the mixing tank. Do not apply **MEPIQUAT CHLORIDE 4.2%** by ULV without using emulsifiers. Highly refined vegetable oils have proven more satisfactory than unrefined vegetable oils. For additional information, see **Compatibility Test for Mix Components**.

AERIAL APPLICATION METHODS AND EQUIPMENT

Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

1. The distance of the outer most nozzles on the boom must not exceed $\frac{3}{4}$ the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45 degrees. Where states have more stringent regulations, they must be observed.

The applicator should be familiar with and take into account the information covered in the publication titled A Summary of Aerial Application Studies by the Spray Drift Task Force.

Importance of Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying the larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversion section of this label).

Controlling Droplet Size

Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. Use a minimum of 2 gallons of water per acre. Increase water volume to at least 10 gallons of water per acre if grass foliage or crop canopy is dense.

Pressure – Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure. Use up to 40 psi.

Number of Nozzles – Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation – Orienting nozzles so that the spray is released backward, parallel to the airstream, will produce larger droplets than other orientations. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce larger droplets than other nozzle types. Use only diaphragm-type nozzles that produce fan spray patterns.

Boom Length – For some use patterns, reducing the effective boom length to less than $\frac{3}{4}$ of the wingspan or rotor length may further reduce drift without reducing swath width.

Application – Applications should not be made at a height greater than 10 feet above the top of the largest plants. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment

When applications are made with a cross-wind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. Do not apply **MEPIQUAT CHLORIDE 4.2%** by aircraft when wind is blowing more than 10 mph. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

Table 1. Application Rates and Timings: Low Rate Multiple Applications

The times and rates of application have been carefully researched and the **Directions for Use** must be observed as specified below. See section VI. **General Restrictions and Limitations.**

Geographic Area	Time of Application	Fields with Moderate Vegetative Vigor: Rate Per Acre	Fields with High Vegetative Vigor: Rate Per Acre
AL, AR, AZ, CA, FL, GA, LA, MO, MS, NC, NM, OK, SC, TN, TX, VA	First Application: Optimal results will be achieved when plants are in the matchhead square ¹ stage of growth	2 fluid ounces	4 fluid ounces
	Second Application: 7-14 days later, or when regrowth occurs.	2 fluid ounces	4 fluid ounces
	Third Application: 7-14 days later, or when regrowth occurs.	2-4 fluid ounces ²	4-8 fluid ounces ²
	Fourth Application: 7-14 days later, or when regrowth occurs.	2-8 fluid ounces ²	4-12 fluid ounces ²
	Fifth Application (if needed): 7-14 days later, or when regrowth occurs.	4-8 fluid ounces ²	4-12 fluid ounces ²
	Late Season: Refer to Late Season Application of MEPIQUAT CHLORIDE 4.2%	8-16 fluid ounces ²	12-24 fluid ounces ²
¹ Matchhead square is when the first square of a typical cotton plant is 1/8-1/4 inches in diameter. The first application should be applied when 50% of the plants have one or more matchhead squares. ² Use higher rates if previous application was not made or if growing conditions are conducive to vigorous growth.			

Table 2. Application Rates and Timing: High Rate, Less Frequent Applications

The times and rates of application have been carefully researched and section II. **Application Instruction** must be observed as specified below. See section VI. **General Restrictions and Limitations**.

Geographic Area	Time of Application	Rate Per Acre
AL, AR, AZ, CA, FL, GA, LA, MO, MS, NM, NC, SC, TN, VA	First Application: Apply MEPIQUAT CHLORIDE 4.2% to actively growing cotton that is 20-30" tall, provided cotton is not more than 7 days beyond early bloom stage (5-6 blooms per 25 row feet). If cotton is 24" tall and has no blooms, apply MEPIQUAT CHLORIDE 4.2% . Use 8-16 fluid ounces per acre on cotton where excessive vegetative growth is not likely to be a problem, and 16 fluid ounces per acre in areas tending to have excessive vegetative growth.	8-16 fluid ounces
	Second Application for Control of Excessive Vegetative Growth: If the cotton field has a history of vigorous growth or if conditions after the first application of MEPIQUAT CHLORIDE 4.2% favor vigorous growth, make a second application 2-3 weeks after the first application.	8-16 fluid ounces
	Third Application for Control of Excessive Vegetative Growth: If the cotton field has a history of vigorous growth or if conditions continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8-16 fluid ounces
	Late Season Application: Refer to Late Season Application in section II. Application Instructions .	8-24 fluid ounces
OK, TX (except Rio Grande Valley)	Areas Where Excessive Vegetative Growth is Not a Problem First Application: Apply MEPIQUAT CHLORIDE 4.2% to actively growing cotton in the early bloom stage (5-6 blooms per 25 row feet). If no blooms are present and the cotton is 20" tall and actively growing, apply MEPIQUAT CHLORIDE 4.2% .	8 fluid ounces
	Second Application: If conditions after the first application of MEPIQUAT CHLORIDE 4.2% favor vigorous growth, make a second application 2-3 weeks after the first application.	8 fluid ounces
	Third Application: If conditions after the second application of MEPIQUAT CHLORIDE 4.2% continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8 fluid ounces
	Late Season Application: Refer to Late Season Application in section II. Application Instructions .	8-24 fluid ounces
OK, TX (including Rio Grande Valley)	Areas Where Excessive Vegetative Growth is a Problem First Application: Apply MEPIQUAT CHLORIDE 4.2% to actively growing cotton that is 20-30" tall, provided cotton is not more than 7 days beyond early bloom stage (5-6 blooms per 25 row feet). If cotton is 24" tall and has no blooms, apply MEPIQUAT CHLORIDE 4.2% .	16 fluid ounces
	Second Application for Control of Excessive Vegetative Growth: If cotton field has a history of vigorous growth, or conditions after the first application of MEPIQUAT CHLORIDE 4.2% favor vigorous growth, make a second application 2-3 weeks after the first application.	8-16 fluid ounces
	Third Application: If conditions after the second application of MEPIQUAT CHLORIDE 4.2% continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8-16 fluid ounces

Geographic Area	Time of Application	Rate Per Acre
	Late Season Application: Refer to Late Season Application in section II. Application Instructions.	8-24 fluid ounces

Temperature and Humidity

When making applications in low relative humidity, set equipment up to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions

Applications should not occur during a temperature inversion, because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light and variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a connected cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas

The pesticide should only be applied when the potential for drift to adjacent areas, (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, nontarget crops) is minimal (e.g. when wind is blowing away from the sensitive areas). Do not apply **MEPIQUAT CHLORIDE 4.2%** by air if sensitive species are within 200 feet.

GROUND APPLICATION

Spray Volume

- **Water as Diluent:** Use 2 gallons of spray solution per acre in all states except California. In California, use a minimum of 5 gallons of spray solution per acre.

III. ADDITIVES

If rain is expected within 8 hours, use a high-quality EPA-exempt surfactant to make **MEPIQUAT CHLORIDE 4.2%** rain-safe after 4 hours.

Compatibility Test for Mix Components

Add components in the following sequence using 2 teaspoons for each pound or 1 teaspoon for each pint of recommended label rate per acre.

1. **Water** – for 20 gallons per acre spray volume, use 3.3 cups (800 ml) of water. For other spray volumes, adjust rates accordingly. Use only water from the intended source at the source temperature.
2. **Products in PVA Bags** – Cap the jar and invert 10 cycles.

3. **Water-Dispersible Products** – (dry flowables, wettable powders, suspension concentrates, or suspo-emulsions) Cap the jar and invert 10 cycles.
4. **Water-Soluble Products** – (such as **MEPIQUAT CHLORIDE 4.2%**) Cap the jar and invert 10 cycles.
5. **Emulsifiable Concentrates** – (oil concentrate) Cap the jar and invert 10 cycles.
6. **Water-Soluble Additives** – Cap the jar and invert 10 cycles.
7. Let the solution stand for 15 minutes.
8. **Evaluate** the solution for uniformity and stability. The spray solution should not have free oil on the surface, nor fine particles that precipitate to the bottom, not thick (clabbered) texture. Do not use any spray solution that could clog spray nozzles.

IV. MIXING ORDER

1. **Water:** Begin by agitating a thoroughly clean sprayer tank half full of clean water.
 2. **Products in PVA Bags:** Rinse the tank thoroughly before adding any material in PVA bags as boron residue will prevent adequate mixing. Place the water-soluble PVA bag into the mixing tank. The water-soluble PVA bag will dissolve in water to allow the contents to disperse. Wait until all water-soluble PVA bags have fully dissolved and the plant regulator is evenly mixed in the spray tank before continuing.
To prepare spray solution for aerial application, use a mixing tank or mixing vat first to get the product into suspension before transferring suspension to air application equipment.
 3. **Water-Dispersible Products:** (dry flowables, wettable-powders, suspension concentrates, or suspo-emulsions).
 4. **Water-Soluble Products**
 5. **Emulsifiable Concentrates**
 6. Remaining quantity water.
- Only moderate agitation should be used while mixing and transporting.

V. GENERAL TANK MIXING INFORMATION

MEPIQUAT CHLORIDE 4.2% has an aqueous base, and as such, is compatible with most insecticides and miticides. You may combine **MEPIQUAT CHLORIDE 4.2%** with foliar fertilizers if prior experience has shown the original liquid formulation of **MEPIQUAT CHLORIDE 4.2%** to be compatible and noninjurious under your conditions. Always perform a **Compatibility Test for Mix Components** before preparing a tank mix application.

Read and follow the applicable **Restrictions and Limitations** and **Directions for Use** on all products involved in tank mixing. The most restrictive labeling applies to tank mixes.

VI. GENERAL RESTRICTIONS AND LIMITATIONS

- Maximum seasonal use rate: Do not apply more than a **total of 48 fluid ounces (3 pints) of MEPIQUAT CHLORIDE 4.2% plant regulator** (0.132 pounds a.i.) per acre, per season.
- The sum of all products and formulations containing mepiquat chloride must not exceed **0.132 pounds** of mepiquat chloride per acre per season.
- **Preharvest Interval (PHI):** Do not apply within **30 days** of harvest.
- **Restricted Entry Interval (REI): 12 hours**
- Do not plant another crop within 75 days of last treatment.
- **Stress:** Do not apply to cotton plants under severe stress due to adverse weather conditions, mite, insect, or nematode damage, disease, herbicide injury, or fertility stress. If using the low-rate multiple option, discontinue use until the stress is alleviated. Do not apply a single application of 8-16 fluid ounces of **MEPIQUAT CHLORIDE 4.2%** to cotton that is stressed due to lack of soil moisture.
- Do not graze or feed cotton forage to livestock.
- Do not apply through any type of **irrigation** equipment.

Table 3. Restrictions and Limitations

Crop	Minimum Time from Application to Harvest (PHI)	Maximum Rate Per Acre Per Application	Maximum Rate Per Acre Per Season	Livestock Grazing or Feeding	Aircraft Application
Cotton	30 days	24 fluid ounces (1.5 pints)	48 fluid ounces (3 pints)	No	Yes

CONDITIONS OF SALE AND WARRANTY

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of J. Oliver Products, LLC or Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer. J. Oliver Products, LLC warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above. J. Oliver Products, LLC makes no other express or implied warranty of fitness or merchantability or any other express or implied warranty. To the extent consistent with applicable law, in no case shall J. Oliver Products, LLC or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product. J. Oliver Products, LLC and Seller offer this product and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty**, which may be varied only by agreement in writing signed by a duly authorized representative of J. Oliver Products, LLC.

MATERIAL TO BE ADDED TO JACKET

REG #

83222-22

Description:

Notification PRN 98-70

check all that apply	
<input type="checkbox"/>	new stamped accepted label
<input type="checkbox"/>	new CSF
<input checked="" type="checkbox"/>	notification

Send to CSC

Instructions:

Attach this sheet to the top of **ALL** material sent to the file room (both loose paper and new material in jackets). This sheet will be imaged; a clear description will aid in finding material in the e-jacket. Remove staples from all material. If returning loose paper then hold together with a binder or paper clip. CSFs should be placed in the CSF folder (if returning jacket) or covered with a red CBI sheet (if returning loose paper). Material to be returned to file room should be place in the appropriate bin.

Reviewer's
Name:

SANZA DIAPAO

Date:

12-21-10

Phone:

305-7269

Division:

PA



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 16 2010

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Ms Jane Miller
J. Oliver Products, LLC
C/O Biologic, Inc
115 Obtuse Hill Road
Brookfield, CT 06804

Dear Ms Miller:

The Agency is in receipt of the following Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10:

Product

CSF

EPA Reg No 83222-22
Mepiquat Chloride 4.2%

Alternate
Date **10/20/2010**

The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10. The Confidential Statement of Formula (CSF) submitted with the application is considered "acceptable" and has been placed in our records.

If you have any questions, please contact me directly at 703-305-5335 or Banza Djapao of my staff at 703-305-7269.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul Mastradone".

Paul Mastradone, Acting Leader
Notifications & Minor Formulations Team Leader
Registration Division (7505P)
Office of Pesticide Programs

July 30, 2010

Document Processing Desk (NOTIF)
Office of Pesticide Programs (7504P)
US Environmental Protection Agency
One Potomac Yard
2777 S. Crystal Drive
Room S-4900, 4th Floor
Arlington, VA 22202

Attention: Ms. S. Joyner (PM #20)

RE: "Mepiquat Chloride 4.2%", EPA Reg. No. 83222-22
Notification to add Sources of Active Ingredient

Dear Ms. Joyner:

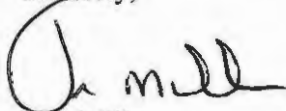
On behalf of J. Oliver Products, LLC please find enclosed an Application for Pesticide Notification to add an alternate formulation to the above-mentioned end-use product. The purpose of the alternate Confidential Statement of Formula (#1) is to add five (5) alternate sources of the registered active ingredient.

The following documents are enclosed to process this Notification:

1. Application for Pesticide Notification (EPA Form 8570-1)
2. One (1) copy of the proposed alternate formulation Confidential Statement of Formula #1 (EPA Form 8570-4)

Should you have any questions, or wish to reach me, please feel free to contact our office at 203-740-1200.

Sincerely,



Jane Miller
Agent to J. Oliver Products, LLC



United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☐ Amendment
☒ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 83222-22	2. EPA Product Manager S. Joyner	3. Proposed Classification <input type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Mepiquat Chloride 4.2%	PM# 20	
5. Name and Address of Applicant (Include ZIP Code) J. Oliver Products, LLC c/o Biologic, Inc. 115 Obtuse Hill Road Brookfield, CT 06804 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input checked="" type="checkbox"/> Final printed labels in response to Agency letter dated NOTIFICATION
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below. DEC 16 2010

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

This is a notification to add an alternate formulation CSF listing alternate sources of the active ingredient as per PR Notice 98-10. This notification is consistent with the provisions of PR Notice 98-10 and the EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____		
* Certification must be submitted		If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt	No. per container
3. Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container		5. Location of Label Directions <input type="checkbox"/>	
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input type="checkbox"/> Other _____			

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)					
Name Jane M. Miller		Title Agent		Telephone No. (Include Area Code) (203) 740-1200	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.					6. Date Application Received (Stamped) 2010 JUL 30
2. Signature 		3. Title Agent			
4. Typed Name Jane M. Miller		5. Date July 30, 2010			

MATERIAL TO BE ADDED TO JACKET

REG #

83222-22

Description:

Alternate Brand Name
"Top Flat MC"

check all that apply		
<input type="checkbox"/>	new stamped accepted label	Send to CSC
<input type="checkbox"/>	new CSF	
<input checked="" type="checkbox"/>	notification	

Instructions:

Attach this sheet to the top of **ALL** material sent to the file room (both loose paper and new material in jackets). This sheet will be imaged; a clear description will aid in finding material in the e-jacket. Remove staples from all material. If returning loose paper then hold together with a binder or paper clip. CSFs should be placed in the CSF folder (if returning jacket) or covered with a red CBI sheet (if returning loose paper). Material to be returned to file room should be place in the appropriate bin.

Reviewer's
Name:

Joyce Edwards

Date:

6/7/10

Phone:

308-5479

Division:

RD



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Mrs. Jane Miller
Agent to J. Oliver Products LLC
c/o Biological Inc 115 Obtuse Hill Road
Brookfield, CT 06804

JUN 3 2010

RE: Notification to Add Alternate Brand Name: "Top Flat MC"
EPA Registration Number: 83222-22
Date of Submission: April 20, 2010

Dear Mrs. Miller:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 dated, April 20, 2010, for the above mentioned product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the actions requested fall within the scope of PRN 98-10. The label submitted with the application has been stamped "Notification" and will be placed in our records.

If you have any questions, please me directly at 703-305-6249 or Joyce Edwards of my staff at 703-308-5479.

Sincerely,

A handwritten signature in black ink, appearing to read "Linda Arrington", is written over a horizontal line.

Linda Arrington
Notifications & Minor Formulations Team Leader
Registration Division (7505P)
Office of Pesticide Programs

BIOLOGIC INC.
agribusiness professionals

April 20, 2010

Document Processing Desk (NOTIF)
Office of Pesticide Programs (7504P)
US Environmental Protection Agency
One Potomac Yard
2777 S. Crystal Drive
Room S-4900, 4th Floor
Arlington, VA 22202

Attention: Ms. Shaja B. Joyner (PM #20)

RE: "Mepiquat Chloride 4.2%"; EPA Reg. No. 83222-22
Notification to add an Alternate Brand Name

Dear Ms. Joyner:

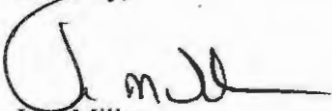
On behalf of J. Oliver Products, LLC please find enclosed an Application for Pesticide Notification to add the alternate brand name of "**Flat Top MC**" to the above mentioned end-use product.

The following documents are enclosed to process this Notification:

1. Application for Pesticide Notification (8570-1)

Should you have any questions, or wish to reach me, please feel free to contact our office at 203-740-1200.

Sincerely,



Jane Miller
Agent to J. Oliver Products, LLC





United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☐ Amendment
☒ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 83222-22	2. EPA Product Manager S. Joyner	3. Proposed Classification <input type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Mepiquat Chloride 4.2%	PM# 20	
5. Name and Address of Applicant (Include ZIP Code) J. Oliver Products, LLC c/o BIOLOGIC, Inc. 115 Obtuse Hill Road Brookfield, CT 06804 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input checked="" type="checkbox"/> Final printed labels in response to Agency letter dated _____	NOTIFICATION JUN - 3 2010
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.	
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.	

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

This is a notification to add the alternate brand name of Flat Top MC to the product per PR Notice 98-10. This notification is consistent with the provisions of PR Notice 98-10 and the EPA regulations at 40 CFR 152.46 and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46 this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____		
* Certification must be submitted		If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt	No. per container
3. Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container		5. Location of Label Directions <input type="checkbox"/> on label	
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input type="checkbox"/> Other _____			

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name Jane M. Miller	Title Agent	Telephone No. (Include Area Code) (203) 740-1200	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			6. Date Application Received (Stamped)
2. Signature 	3. Title Agent		
4. Typed Name Jane M. Miller	5. Date April 20, 2010		

(FRONT BOTTLE LABEL)

MEPIQUAT CHLORIDE 4.2%
[alt. brand name of FLAT TOP MC]
Plant Growth Regulator

NOTIFICATION

JUN - 3 2010

For Use On Cotton

Active Ingredient:

Mepiquat Chloride: N,N-dimethylpiperidinium chloride.....4.2%

Inert Ingredients:.....95.8%

Total.....100.0%

*Equivalent to 0.35 pounds of active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION

See inside booklet for complete **Precautionary Statements and Directions for Use.**

EPA Registration Number 83222-22

EPA Establishment Number

NET CONTENTS:

LOT NUMBER:

Manufactured By:

J. Oliver Products, LLC

3187 Robertson Gin Road

Hernando, MS 38632

Page 1

Orig-EPA-Approval-02232010

Notification for alternate brand name-04202010

(BOOKLET)

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Caution. Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing.

FIRST AID	
If in eyes:	Hold eyelid open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If swallowed:	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
If on skin or clothing:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Hot Line Number	
Have product container or label with you when calling a poison control center or doctor or going for treatment.	

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistant selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves (such as nitrile, butyl, neoprene and/or barrier laminate)
- Shoes plus socks

User Safety Requirements

Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls Statement

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticide [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of **12 hours**.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material.
- Shoes plus socks.

Storage and Disposal

Do not contaminate water, food or feed by storage and disposal.

Pesticide Storage: Do not store below 32° F or above 100° F. Store in a dry place away from heat or open flame.

Pesticide Disposal: Pesticide wastes are toxic. Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide spray mix, or rinsate is a violation of Federal law. If these wastes cannot be disposed of according to label instructions, contact the state agency responsible for pesticide regulation or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal: Nonrefillable Container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Then offer for recycling, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Containers 5 gallons or less: Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

I. GENERAL INFORMATION

MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] is a foliar applied plant regulator that modifies the cotton plant in several beneficial ways. It allows the grower to manage the cotton plant for **short-season production** leading to reduced risk of yield and quality loss due to delayed and prolonged harvest. Additional benefits derived from the use of this product include:

- height reduction and more canopy
- better early boll retention and/or larger bolls
- less boll rot
- improved defoliation
- reduced trash and lower ginning costs
- better harvest efficiency
- darker green leaf color

These benefits can provide for earlier maturity and may result in improved yields.

Spray Coverage

Under most circumstances, water is the recommended diluent, however, oil is permitted in the following states for ultra low volume (ULV) aerial applications: Alabama, Arkansas, Florida, Georgia, Louisiana, Missouri, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas. Refer to **Air and Ground Application** sections for spray volumes.

Regardless of method or gallonage of application, thorough coverage of the cotton foliage is required.

Cleaning Application Equipment

Clean application equipment thoroughly using a strong detergent or commercial sprayer cleaner according to the manufacturer's directions before and after applying this product, particularly if a product with the potential to injure crops was used.

II. APPLICATION INSTRUCTIONS

Early Application

On both short-staple and Pima cotton, the grower has the option of low-rate multiple applications (see **Table 1**) or higher, less frequent applications (see **Table 2**) which greatly facilitates his management flexibility. The multiple application option gives the producer the ability to discontinue usage of **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** if any significant stresses occur after an earlier application. In such a case, the total quantity of **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** used over a season may be reduced. If stress is relieved, the grower has the option of continuing treatments with **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]**. In addition, the rate and timing ranges indicated in the **Application Rates and Timings Tables** allow the grower to tailor his usage of **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** to the degree of vegetative vigor in a given field. In areas where insecticides, miticides or foliar fertilizers are frequently applied, the timings are such that tank mixing is often possible. (See section **VII. General Restrictions and Limitations**).

Fields should be carefully scouted and **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** should not be applied if plants are under severe stress from weather factors, mite, insect or nematode damage, disease stress, herbicide injury, or fertility stress. In the absence of these stresses, up to 5 low-rate multiple applications can be made each season. After the first application (at matchhead square in the absence of stress), the rate and timing of subsequent applications will depend on vegetative vigor. Under good growing conditions, additional treatments should be made at 7-14 day intervals. However, if new growth at any time is excessive, higher rates of **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** can be used. If significant loss of squares or young bolls has occurred earlier due to insect pressure or other stresses, but now these stresses have all been alleviated, the need for **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** is increased – excess vegetative growth is likely because of poor boll load.

Late Season Application

Late application of **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** (approximately during the fourth to sixth week of blooming) can provide certain benefits to cotton. However, it should not and does not substitute for early season use – the time of the greatest benefit from the use of **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]**. Late season application can lead to one or more of the following:

- reduction in late season vegetative growth or regrowth after cutout or defoliation
- more complete and manageable cutout
- better defoliation
- earlier maturity
- reduction in trash

- lower ginning costs

Some of these effects may favorably influence the yield potential and fiber quality. A late season application of **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** should be applied only if fields are not drought or nutrient stressed; that is, those fields likely to experience additional vegetative growth or regrowth. However, fields that are very rank and extremely vigorous due to a combination of poor boll load and excellent growing conditions may not respond as much as desired to late season applications at the specified rates.

Timing for Late Season Applications

- **On fields where cotton cuts out and then starts regrowth:** Apply when regrowth begins, as evidenced by new leaves in the terminal and stem elongation. This application time is often, but not always, 5-6 weeks after the first bloom.
- **On fields where cotton never completely cuts out:** Apply **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** when there are 4-6 nodes above the white flower (NAWF). Measure NAWF by counting the number of mainstem nodes from the first position white bloom (the one closest to the mainstem) to the terminal. Count the node with the first position white bloom as zero and the last node in the terminal, which is counted, should have a leaf at least the size of a quarter. Generally, the NAWF first reaches 4-6 nodes during the fourth to sixth week of bloom.

During this time, the NAWF should be decreasing about one node every 5-6 days – if its rate of decrease is less, the plant is not cutting out soon enough (the crop is too vigorous). If the fifth week of bloom arrives and NAWF is still above 5-6, apply **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]**.

Use Rate for Late Season Application

Apply 8-24 fluid ounces of **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** per acre. Use the lower rate on cotton with only moderate additional growth potential, and the higher rate on fields likely to continue vigorous growth.

AIR APPLICATION

Spray Volume

- **Water as Diluent:** Use a minimum of 2 gallons of water per acre in all states except California. In California, use a minimum of 5 gallons of water per acre.
- **Oil as Diluent:** Use a minimum of 1 quart of oil per acre. When using oil as a diluent, the oil concentrate must contain either a petroleum or vegetable oil base and must meet all of the following criteria:
 - be nonphytotoxic
 - contain only EPA-exempt ingredients
 - provide good mixing quality in the jar test
 - be successful in local experience

The exact composition of suitable products will vary; however, vegetable and petroleum oil concentrates should contain emulsifiers to provide good mixing quality. If the oil does not contain an emulsifier, one must be added during mixing at a volume equal to 3% of the final volume of the mixing tank. Do not apply **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]**

by ULV without using emulsifiers. Highly refined vegetable oils have proven more satisfactory than unrefined vegetable oils. For additional information, see **Compatibility Test for Mix Components**.

AERIAL APPLICATION METHODS AND EQUIPMENT

Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

1. The distance of the outer most nozzles on the boom must not exceed $\frac{3}{4}$ the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45 degrees. Where states have more stringent regulations, they must be observed.

The applicator should be familiar with and take into account the information covered in the publication titled A Summary of Aerial Application Studies by the Spray Drift Task Force.

Importance of Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying the larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversion section of this label).

Controlling Droplet Size

Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. Use a minimum of 2 gallons of water per acre. Increase water volume to at least 10 gallons of water per acre if grass foliage or crop canopy is dense.

Pressure – Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure. Use up to 40 psi.

Number of Nozzles – Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation – Orienting nozzles so that the spray is released backward, parallel to the airstream, will produce larger droplets than other orientations. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce larger droplets than other nozzle types. Use only diaphragm-type nozzles that produce fan spray patterns.

Boom Length – For some use patterns, reducing the effective boom length to less than $\frac{3}{4}$ of the wingspan or rotor length may further reduce drift without reducing swath width.

Application – Applications should not be made at a height greater than 10 feet above the top of the largest plants. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment

When applications are made with a cross-wind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. Do not apply **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** by aircraft when wind is blowing more than 10 mph. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

Table 1. Application Rates and Timings: Low Rate Multiple Applications

The times and rates of application have been carefully researched and the **Directions for Use** must be observed as specified below. See section VI. **General Restrictions and Limitations.**

Geographic Area	Time of Application	Fields with Moderate Vegetative Vigor: Rate Per Acre	Fields with High Vegetative Vigor: Rate Per Acre
AL, AR, AZ, CA, FL, GA, LA, MO, MS, NC, NM, OK, SC, TN, TX, VA	First Application: Optimal results will be achieved when plants are in the matchhead square ¹ stage of growth	2 fluid ounces	4 fluid ounces
	Second Application: 7-14 days later, or when regrowth occurs.	2 fluid ounces	4 fluid ounces
	Third Application: 7-14 days later, or when regrowth occurs.	2-4 fluid ounces ²	4-8 fluid ounces ²
	Fourth Application: 7-14 days later, or when regrowth occurs.	2-8 fluid ounces ²	4-12 fluid ounces ²
	Fifth Application (if needed): 7-14 days later, or when regrowth occurs.	4-8 fluid ounces ²	4-12 fluid ounces ²
	Late Season: Refer to Late Season Application of MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] .	8-16 fluid ounces ²	12-24 fluid ounces ²
¹ Matchhead square is when the first square of a typical cotton plant is 1/8-1/4 inches in diameter. The first application should be applied when 50% of the plants have one or more matchhead squares. ² Use higher rates if previous application was not made or if growing conditions are conducive to vigorous growth.			

Table 2. Application Rates and Timing: High Rate, Less Frequent Applications

The times and rates of application have been carefully researched and section II. **Application Instruction** must be observed as specified below. See section VI. **General Restrictions and Limitations**.

Geographic Area	Time of Application	Rate Per Acre
AL, AR, AZ, CA, FL, GA, LA, MO, MS, NM, NC, SC, TN, VA	First Application: Apply MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] to actively growing cotton that is 20-30" tall, provided cotton is not more than 7 days beyond early bloom stage (5-6 blooms per 25 row feet). If cotton is 24" tall and has no blooms, apply MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] . Use 8-16 fluid ounces per acre on cotton where excessive vegetative growth is not likely to be a problem, and 16 fluid ounces per acre in areas tending to have excessive vegetative growth.	8-16 fluid ounces
	Second Application for Control of Excessive Vegetative Growth: If the cotton field has a history of vigorous growth or if conditions after the first application of MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] favor vigorous growth, make a second application 2-3 weeks after the first application.	8-16 fluid ounces
	Third Application for Control of Excessive Vegetative Growth: If the cotton field has a history of vigorous growth or if conditions continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8-16 fluid ounces
	Late Season Application: Refer to Late Season Application in section II. Application Instructions .	8-24 fluid ounces
OK, TX (except Rio Grande Valley)	Areas Where Excessive Vegetative Growth is Not a Problem	
	First Application: Apply MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] to actively growing cotton in the early bloom stage (5-6 blooms per 25 row feet). If no blooms are present and the cotton is 20" tall and actively growing, apply MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] .	8 fluid ounces
	Second Application: If conditions after the first application of MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] favor vigorous growth, make a second application 2-3 weeks after the first application.	8 fluid ounces
	Third Application: If conditions after the second application of MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8 fluid ounces
	Late Season Application: Refer to Late Season Application in section II. Application Instructions .	8-24 fluid ounces
OK, TX (including Rio Grande Valley)	Areas Where Excessive Vegetative Growth is a Problem	
	First Application: Apply MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] to actively growing cotton that is 20-30" tall, provided cotton is not more than 7 days beyond early bloom stage (5-6 blooms per 25 row feet). If cotton is 24" tall and has no blooms, apply MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] .	16 fluid ounces
	Second Application for Control of Excessive Vegetative Growth: If cotton field has a history of vigorous growth, or conditions after the first application of MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] favor vigorous growth, make a second application 2-3 weeks after the first application.	8-16 fluid ounces

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	Third Application: If conditions after the second application of MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8-16 fluid ounces
Geographic Area	Time of Application	Rate Per Acre
	Late Season Application: Refer to Late Season Application in section II. Application Instructions.	8-24 fluid ounces

Temperature and Humidity

When making applications in low relative humidity, set equipment up to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions

Applications should not occur during a temperature inversion, because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light and variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a connected cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas

The pesticide should only be applied when the potential for drift to adjacent areas, (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, nontarget crops) is minimal (e.g. when wind is blowing away from the sensitive areas). Do not apply **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** by air if sensitive species are within 200 feet.

GROUND APPLICATION

Spray Volume

- **Water as Diluent:** Use 2 gallons of spray solution per acre in all states except California. In California, use a minimum of 5 gallons of spray solution per acre.

III. ADDITIVES

If rain is expected within 8 hours, use a high-quality EPA-exempt surfactant to make **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** rain-safe after 4 hours.

Compatibility Test for Mix Components

Add components in the following sequence using 2 teaspoons for each pound or 1 teaspoon for each pint of recommended label rate per acre.

1. **Water** – for 20 gallons per acre spray volume, use 3.3 cups (800 ml) of water. For other spray volumes, adjust rates accordingly. Use only water from the intended source at the source temperature.
2. **Products in PVA Bags** – Cap the jar and invert 10 cycles.
3. **Water-Dispersible Products** – (dry flowables, wettable powders, suspension concentrates, or suspo-emulsions) Cap the jar and invert 10 cycles.
4. **Water-Soluble Products** – (such as **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]**) Cap the jar and invert 10 cycles.
5. **Emulsifiable Concentrates** – (oil concentrate) Cap the jar and invert 10 cycles.
6. **Water-Soluble Additives** – Cap the jar and invert 10 cycles.
7. Let the solution stand for 15 minutes.
8. **Evaluate** the solution for uniformity and stability. The spray solution should not have free oil on the surface, nor fine particles that precipitate to the bottom, not thick (clabbered) texture. Do not use any spray solution that could clog spray nozzles.

IV. MIXING ORDER

1. **Water:** Begin by agitating a thoroughly clean sprayer tank half full of clean water.
2. **Products in PVA Bags:** Rinse the tank thoroughly before adding any material in PVA bags as boron residue will prevent adequate mixing. Place the water-soluble PVA bag into the mixing tank. The water-soluble PVA bag will dissolve in water to allow the contents to disperse. Wait until all water-soluble PVA bags have fully dissolved and the plant regulator is evenly mixed in the spray tank before continuing.
To prepare spray solution for aerial application, use a mixing tank or mixing vat first to get the product into suspension before transferring suspension to air application equipment.
3. **Water-Dispersible Products:** (dry flowables, wettable-powders, suspension concentrates, or suspo-emulsions).
4. **Water-Soluble Products**
5. **Emulsifiable Concentrates**
6. Remaining quantity water.

Only moderate agitation should be used while mixing and transporting.

V. GENERAL TANK MIXING INFORMATION

MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] has an aqueous base, and as such, is compatible with most insecticides and miticides. You may combine **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** with foliar fertilizers if prior experience has shown the original liquid formulation of **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** to be compatible and noninjurious under your conditions. Always perform a **Compatibility Test for Mix Components** before preparing a tank mix application.

Read and follow the applicable **Restrictions and Limitations** and **Directions for Use** on all products involved in tank mixing. The most restrictive labeling applies to tank mixes.

VI. GENERAL RESTRICTIONS AND LIMITATIONS

- Maximum seasonal use rate: Do not apply more than a **total of 48 fluid ounces (3 pints) of MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC] plant regulator** (0.132 pounds a.i.) per acre, per season.
- The sum of all products and formulations containing mepiquat chloride must not exceed **0.132 pounds** of mepiquat chloride per acre per season.
- **Preharvest Interval (PHI):** Do not apply within **30 days** of harvest.
- **Restricted Entry Interval (REI): 12 hours**
- Do not plant another crop within 75 days of last treatment.
- **Stress:** Do not apply to cotton plants under severe stress due to adverse weather conditions, mite, insect, or nematode damage, disease, herbicide injury, or fertility stress. If using the low-rate multiple option, discontinue use until the stress is alleviated. Do not apply a single application of 8-16 fluid ounces of **MEPIQUAT CHLORIDE 4.2% [FLAT TOP MC]** to cotton that is stressed due to lack of soil moisture.
- Do not graze or feed cotton forage to livestock.
- Do not apply through any type of **irrigation** equipment.

Table 3. Restrictions and Limitations

Crop	Minimum Time from Application to Harvest (PHI)	Maximum Rate Per Acre Per Application	Maximum Rate Per Acre Per Season	Livestock Grazing or Feeding	Aircraft Application
Cotton	30 days	24 fluid ounces (1.5 pints)	48 fluid ounces (3 pints)	No	Yes

CONDITIONS OF SALE AND WARRANTY

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of J. Oliver Products, LLC or Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer. J. Oliver Products, LLC warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above. J. Oliver Products, LLC makes no other express or implied warranty of fitness or merchantability or any other express or implied warranty. To the extent consistent with applicable law, in no case shall J. Oliver Products, LLC or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product. J. Oliver Products, LLC and Seller offer this product and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty**, which may be varied only by agreement in writing signed by a duly authorized representative of J. Oliver Products, LLC.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Jane Miller
115 Obtuse Hill
Brookfield, CT 06804

Agent for -
J. Oliver Products, Inc.
3187 Robertson Gin Road
Hernando, MS 38632

APR 8 2010

Subject: Mepiquat Chloride 4.2%
EPA Registration No. 83222-22
Registration Notice dated 2/23/2010
Decision No. 422744

Dear Ms. Miller,

This letter serves to provide you with a corrected Registration Notice for EPA Reg. No. 83222-22. The Registration Notice sent to you earlier contained an incorrect registration number. The enclosed copy should be used in place of the earlier notice. If you have any questions, please contact Shaunta Hill at 703-347-8961 or hill.shaunta@epa.gov.

Sincerely yours,

A handwritten signature in cursive script that reads "Shaja Joyner".

Shaja Joyner
Product Manager (20)
Fungicide Branch
Registration Division (7504P)

Enclosure:
Registration Notice



U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Pesticide Programs
Registration Division (7505P)
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

EPA Reg. Number:

83222-22

Date of Issuance:

FEB 23 2010

NOTICE OF PESTICIDE:

☒ Registration
☐ Reregistration
(under FIFRA, as amended)

Term of Issuance:

Conditional

Name of Pesticide Product:

Mepiquat Chloride 4.2%

Name and Address of Registrant (include ZIP Code):

J. Oliver Products, Inc.
3187 Robertson Gin Road
Hernando, MS 38632

Mailed to: Jane Miller
115 Obtuse Hill
Brookfield, CT 06804

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act. Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA section 3(c)(7)(A) provided that you:

1) Submit and/or cite all data required for registration of your product under FIFRA section 3(c)(5) when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for reregistration of your product under FIFRA section 4.

2) You must submit two copies of a final printed label within 30 days from the date of this notice which makes the following changes:

Continued on Page 2

Signature of Approving Official:

Shaja B. Joyner, Product Manager (20)
Fungicide Branch, Registration Division (7505P)

Date:

FEB 23 2010

- A. On page 1 of the labeling,
- Change the EPA registration number to 83222-22.
- B. On page 2 of the labeling,
- Add the heading "User Safety Requirements" prior to the text starting "Follow the manufacturer's instructions".
 - Insert the word "exist" in the second sentence of the User Safety Requirements following "If no such instructions".
- C. On page 3 of the labeling,
- Within the "User Safety Recommendations" box, in the second bullet add "/PPE" following "Remove clothing".
 - Within the "Environmental Hazards" section, replace "disposing or equipment washwaters" with "disposing of equipment washwaters or rinsate".
- D. On page 4 of the labeling,
- Delete the container information for sizes greater than 5 gallons. Your application indicated that the product will not be sold in container sizes greater than 5 gallons.
 - Replace "often results" with "may result" in the final sentence starting "These benefits can",
- E. On page 5 of the labeling,
- Replace the word "dosages" with "applications" in the first sentence of the first paragraph within the Application Instructions section.
 - Replace "poor fruit load" with "poor boll load" in the last sentence of the paragraph starting "Fields should be", within the Application Instructions section.
- F. On page 6 of the labeling,
- In the paragraph starting "Some of these effects", replace "suggested" with "specified" in the final sentence.
- G. On page 7 of the labeling,
- In the first paragraph, in the sentence starting "Do not apply", insert the word "by" following Mepiquat Chloride 4.2%".
 - Under the header "Spray Drift Management" within the Aerial application methods and equipments; for item #2, replace the word "should" with "must" in the sentences starting "where states have more".
- H. On page 8 of the labeling,
- In the sentence directly following the Table 1 header, replace the word "should" with "must".

I. On page 9 of the labeling,

- Amend the header for Table 2 by adding "High rate, less frequent applications". Also replace "should" with "must" in the sentence starting with "The times and rates", following the Table 2 header.

J. On page 10 of the labeling,

- Repeat the Table 2 column and row headers (geographic area, time of application, rate per acre) from page 9 so that it appears above the final table row shown on page 10.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label stamped "Accepted with Comments" is enclosed for your records. If you have any questions, please contact Shaunta Hill at 703-3437-8961 or by email at hill.shaunta@epa.gov.

Shaja B. Joyner
Product Manager (20)
Fungicide Branch
Registration Division (7505P)



U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Pesticide Programs
Registration Division (7505P)
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

EPA Reg. Number:

83222-22

Date of Issuance:

FEB 23 2010

NOTICE OF PESTICIDE:

☒ Registration
☐ Reregistration
(under FIFRA, as amended)

Term of Issuance:
Conditional

Name of Pesticide Product:

Mepiquat Chloride 4.2%

Name and Address of Registrant (include ZIP Code):

J. Oliver Products, Inc.
3187 Robertson Gin Road
Hernando, MS 38632

Mailed to: Jane Miller
115 Obtuse Hill
Brookfield, CT 06804

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act. Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA section 3(c)(7)(A) provided that you:

1) Submit and/or cite all data required for registration of your product under FIFRA section 3(c)(5) when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for reregistration of your product under FIFRA section 4.

2) You must submit two copies of a final printed label within 30 days from the date of this notice which makes the following changes:

Continued on Page 2

Signature of Approving Official:

Shaja B. Joyner, Product Manager (20)
Fungicide Branch, Registration Division (7505P)

Date:

FEB 23 2010

- A. On page 1 of the labeling,
- Change the EPA registration number to 86461-6.
- B. On page 2 of the labeling,
- Add the heading "User Safety Requirements" prior to the text starting "Follow the manufacturer's instructions".
 - Insert the word "exist" in the second sentence of the User Safety Requirements following "If no such instructions".
- C. On page 3 of the labeling,
- Within the "User Safety Recommendations" box, in the second bullet add "/PPE" following "Remove clothing".
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J. On page 10 of the labeling,

- Repeat the Table 2 column and row headers (geographic area, time of application, rate per acre) from page 9 so that it appears above the final table row shown on page 10.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label stamped "Accepted with Comments" is enclosed for your records. If you have any questions, please contact Shaunta Hill at 703-3437-8961 or by email at hill.shaunta@epa.gov.

Shaja B. Joyner
Product Manager (20)
Fungicide Branch
Registration Division (7505P)

(FRONT BOTTLE LABEL)

MEPIQUAT CHLORIDE 4.2%

Plant Growth Regulator

For Use On Cotton

Active Ingredient:

Mepiquat Chloride: N,N-dimethylpiperidinium chloride.....4.2%

Inert Ingredients:.....95.8%

Total.....100.0%

*Equivalent to 0.35 pounds of active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION

See inside booklet for complete **Precautionary Statements** and **Directions for Use**.

EPA Registration Number 83222-XX

EPA Establishment Number XXXXX-XX-XXX

NET CONTENTS:

LOT NUMBER:

Manufactured By:

J. Oliver Products, Inc.

3187 Robertson Gin Road

Hernando, MS 38632

ACCEPTED
with COMMENTS
In EPA Letter Dated
FEB 23 2010

**Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.**

83222-22

(BOOKLET)

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Caution. Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing.

FIRST AID	
If in eyes:	Hold eyelid open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If swallowed:	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
If on skin or clothing:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Hot Line Number	
Have product container or label with you when calling a poison control center or doctor or going for treatment.	

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistant selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves (such as nitrile, butyl, neoprene and/or barrier laminate)
- Shoes plus socks

Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls Statement

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticide [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of **12 hours**.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material.
- Shoes plus socks.

Storage and Disposal

Do not contaminate water, food or feed by storage and disposal.

Pesticide Storage: Do not store below 32° F or above 100° F. Store in a dry place away from heat or open flame.

Pesticide Disposal: Pesticide wastes are toxic. Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide spray mix, or rinsate is a violation of Federal law. If these wastes cannot be disposed of according to label instructions, contact the state agency responsible for pesticide regulation of the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal: Nonrefillable Container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Then offer for recycling, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Containers 5 gallons or less: Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Containers larger than 5 gallons: Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

I. GENERAL INFORMATION

MEPIQUAT CHLORIDE 4.2% is a foliar applied plant regulator that modifies the cotton plant in several beneficial ways. It allows the grower to manage the cotton plant for **short-season production** leading to reduced risk of yield and quality loss due to delayed and prolonged harvest. Additional benefits derived from the use of this product include:

- height reduction and more canopy
- better early boll retention and/or larger bolls
- less boll rot
- improved defoliation
- reduced trash and lower ginning costs
- better harvest efficiency
- darker green leaf color

These benefits can provide for earlier maturity and often result in improved yields.

Spray Coverage

Under most circumstances, water is the recommended diluent, however, oil is permitted in the following states for ultra low volume (ULV) aerial applications: Alabama, Arkansas, Florida, Georgia, Louisiana, Missouri, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas. Refer to **Air and Ground Application** sections for spray volumes.

Regardless of method or gallonage of application, thorough coverage of the cotton foliage is required.

Cleaning Application Equipment

Clean application equipment thoroughly using a strong detergent or commercial sprayer cleaner according to the manufacturer's directions before and after applying this product, particularly if a product with the potential to injure crops was used.

II. APPLICATION INSTRUCTIONS

Early Application

On both short-staple and Pima cotton, the grower has the option of low-rate multiple applications (see **Table 1**) or higher, less frequent dosages (see **Table 2**) which greatly facilitates his management flexibility. The multiple application option gives the producer the ability to discontinue usage of **MEPIQUAT CHLORIDE 4.2%** if any significant stresses occur after an earlier application. In such a case, the total quantity of **MEPIQUAT CHLORIDE 4.2%** used over a season may be reduced. If stress is relieved, the grower has the option of continuing treatments with **MEPIQUAT CHLORIDE 4.2%**. In addition, the rate and timing ranges indicated in the **Application Rates and Timings Tables** allow the grower to tailor his usage of **MEPIQUAT CHLORIDE 4.2%** to the degree of vegetative vigor in a given field. In areas where insecticides, miticides or foliar fertilizers are frequently applied, the timings are such that tank mixing is often possible. (See section **VII. General Restrictions and Limitations**).

Fields should be carefully scouted and **MEPIQUAT CHLORIDE 4.2%** should not be applied if plants are under severe stress from weather factors, mite, insect or nematode damage, disease stress, herbicide injury, or fertility stress. In the absence of these stresses, up to 5 low-rate multiple applications can be made each season. After the first application (at matchhead square in the absence of stress), the rate and timing of subsequent applications will depend on vegetative vigor. Under good growing conditions, additional treatments should be made at 7-14 day intervals. However, if new growth at any time is excessive, higher rates of **MEPIQUAT CHLORIDE 4.2%** can be used. If significant loss of squares or young bolls has occurred earlier due to insect pressure or other stresses, but now these stresses have all been alleviated, the need for **MEPIQUAT CHLORIDE 4.2%** is increased – excess vegetative growth is likely because of poor fruit load.

Late Season Application

Late application of **MEPIQUAT CHLORIDE 4.2%** (approximately during the fourth to sixth week of blooming) can provide certain benefits to cotton. However, it should not and does not substitute for early season use – the time of the greatest benefit from the use of **MEPIQUAT CHLORIDE 4.2%**. Late season application can lead to one or more of the following:

- reduction in late season vegetative growth or regrowth after cutout or defoliation
- more complete and manageable cutout
- better defoliation
- earlier maturity
- reduction in trash
- lower ginning costs

Some of these effects may favorably influence the yield potential and fiber quality. A late season application of **MEPIQUAT CHLORIDE 4.2%** should be applied only if fields are not drought or nutrient stressed; that is, those fields likely to experience additional vegetative growth or regrowth. However, fields that are very rank and extremely vigorous due to a combination of poor boll load and excellent growing conditions may not respond as much as desired to late season applications at the suggested rates.

Timing for Late Season Applications

- **On fields where cotton cuts out and then starts regrowth:** Apply when regrowth begins, as evidenced by new leaves in the terminal and stem elongation. This application time is often, but not always, 5-6 weeks after the first bloom.
- **On fields where cotton never completely cuts out:** Apply **MEPIQUAT CHLORIDE 4.2%** when there are 4-6 nodes above the white flower (NAWF). Measure NAWF by counting the number of mainstem nodes from the first position white bloom (the one closest to the mainstem) to the terminal. Count the node with the first position white bloom as zero and the last node in the terminal, which is counted, should have a leaf at least the size of a quarter. Generally, the NAWF first reaches 4-6 nodes during the fourth to sixth week of bloom.

During this time, the NAWF should be decreasing about one node every 5-6 days – if its rate of decrease is less, the plant is not cutting out soon enough (the crop is too vigorous). If the fifth week of bloom arrives and NAWF is still above 5-6, apply **MEPIQUAT CHLORIDE 4.2%**.

Use Rate for Late Season Application

Apply 8-24 fluid ounces of **MEPIQUAT CHLORIDE 4.2%** per acre. Use the lower rate on cotton with only moderate additional growth potential, and the higher rate on fields likely to continue vigorous growth.

AIR APPLICATION

Spray Volume

- **Water as Diluent:** Use a minimum of 2 gallons of water per acre in all states except California. In California, use a minimum of 5 gallons of water per acre.
- **Oil as Diluent:** Use a minimum of 1 quart of oil per acre. When using oil as a diluent, the oil concentrate must contain either a petroleum or vegetable oil base and must meet all of the following criteria:
 - be nonphytotoxic
 - contain only EPA-exempt ingredients
 - provide good mixing quality in the jar test
 - be successful in local experience

The exact composition of suitable products will vary; however, vegetable and petroleum oil concentrates should contain emulsifiers to provide good mixing quality. If the oil does not contain an emulsifier, one must be added during mixing at a volume equal to 3% of the final volume of the mixing tank. Do not apply **MEPIQUAT CHLORIDE 4.2%** ULV without using emulsifiers. Highly refined vegetable oils have proven more satisfactory than unrefined vegetable oils. For additional information, see **Compatibility Test for Mix Components**.

AERIAL APPLICATION METHODS AND EQUIPMENT

Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

1. The distance of the outer most nozzles on the boom must not exceed $\frac{3}{4}$ the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45 degrees. Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the publication titled A Summary of Aerial Application Studies by the Spray Drift Task Force.

Importance of Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying the larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversion section of this label).

Controlling Droplet Size

Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. Use a minimum of 2 gallons of water per acre. Increase water volume to at least 10 gallons of water per acre if grass foliage or crop canopy is dense.

Pressure – Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure. Use up to 40 psi.

Number of Nozzles – Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation – Orienting nozzles so that the spray is released backward, parallel to the airstream, will produce larger droplets than other orientations. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce larger droplets than other nozzle types. Use only diaphragm-type nozzles that produce fan spray patterns.

Boom Length – For some use patterns, reducing the effective boom length to less than ¾ of the wingspan or rotor length may further reduce drift without reducing swath width.

Application – Applications should not be made at a height greater than 10 feet above the top of the largest plants. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment

When applications are made with a cross-wind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. Do not apply **MEPIQUAT CHLORIDE 4.2%** by aircraft when wind is blowing more than 10 mph. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

Table 1. Application Rates and Timings: Low Rate Multiple Applications

The times and rates of application have been carefully researched and the **Directions for Use** should be observed as specified below. See section VI. **General Restrictions and Limitations.**

Geographic Area	Time of Application	Fields with Moderate Vegetative Vigor: Rate Per Acre	Fields with High Vegetative Vigor: Rate Per Acre
AL, AR, AZ, CA, FL, GA, LA, MO, MS, NC, NM, OK, SC, TN, TX, VA	First Application: Optimal results will be achieved when plants are in the matchhead square ¹ stage of growth	2 fluid ounces	4 fluid ounces
	Second Application: 7-14 days later, or when regrowth occurs.	2 fluid ounces	4 fluid ounces
	Third Application: 7-14 days later, or when regrowth occurs.	2-4 fluid ounces ²	4-8 fluid ounces ²
	Fourth Application: 7-14 days later, or when regrowth occurs.	2-8 fluid ounces ²	4-12 fluid ounces ²
	Fifth Application (if needed): 7-14 days later, or when regrowth occurs.	4-8 fluid ounces ²	4-12 fluid ounces ²
	Late Season: Refer to Late Season Application of MEPIQUAT CHLORIDE 4.2%	8-16 fluid ounces ²	12-24 fluid ounces ²
¹ Matchhead square is when the first square of a typical cotton plant is 1/8-1/4 inches in diameter. The first application should be applied when 50% of the plants have one or more matchhead squares. ² Use higher rates if previous application was not made or if growing conditions are conducive to vigorous growth.			

Table 2. Application Rates and Timing

The times and rates of application have been carefully researched and section II. **Application Instruction** should be observed as specified below. See section VI. **General Restrictions and Limitations**.

Geographic Area	Time of Application	Rate Per Acre
AL, AR, AZ, CA, FL, GA, LA, MO, MS, NM, NC, SC, TN, VA	First Application: Apply MEPIQUAT CHLORIDE 4.2% to actively growing cotton that is 20-30" tall, provided cotton is not more than 7 days beyond early bloom stage (5-6 blooms per 25 row feet). If cotton is 24" tall and has no blooms, apply MEPIQUAT CHLORIDE 4.2% . Use 8-16 fluid ounces per acre on cotton where excessive vegetative growth is not likely to be a problem, and 16 fluid ounces per acre in areas tending to have excessive vegetative growth.	8-16 fluid ounces
	Second Application for Control of Excessive Vegetative Growth: If the cotton field has a history of vigorous growth or if conditions after the first application of MEPIQUAT CHLORIDE 4.2% favor vigorous growth, make a second application 2-3 weeks after the first application.	8-16 fluid ounces
	Third Application for Control of Excessive Vegetative Growth: If the cotton field has a history of vigorous growth or if conditions continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8-16 fluid ounces
	Late Season Application: Refer to Late Season Application in section II. Application Instructions.	8-24 fluid ounces
OK, TX (except Rio Grande Valley)	Areas Where Excessive Vegetative Growth is Not a Problem First Application: Apply MEPIQUAT CHLORIDE 4.2% to actively growing cotton in the early bloom stage (5-6 blooms per 25 row feet). If no blooms are present and the cotton is 20" tall and actively growing, apply MEPIQUAT CHLORIDE 4.2% .	8 fluid ounces
	Second Application: If conditions after the first application of MEPIQUAT CHLORIDE 4.2% favor vigorous growth, make a second application 2-3 weeks after the first application.	8 fluid ounces
	Third Application: If conditions after the second application of MEPIQUAT CHLORIDE 4.2% continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8 fluid ounces
	Late Season Application: Refer to Late Season Application in section II. Application Instructions.	8-24 fluid ounces
OK, TX (including Rio Grande Valley)	Areas Where Excessive Vegetative Growth is a Problem First Application: Apply MEPIQUAT CHLORIDE 4.2% to actively growing cotton that is 20-30" tall, provided cotton is not more than 7 days beyond early bloom stage (5-6 blooms per 25 row feet). If cotton is 24" tall and has no blooms, apply MEPIQUAT CHLORIDE 4.2% .	16 fluid ounces
	Second Application for Control of Excessive Vegetative Growth: If cotton field has a history of vigorous growth, or conditions after the first application of MEPIQUAT CHLORIDE 4.2% favor vigorous growth, make a second application 2-3 weeks after the first application.	8-16 fluid ounces
	Third Application: If conditions after the second application of MEPIQUAT CHLORIDE 4.2% continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8-16 fluid ounces

	Late Season Application: Refer to Late Season Application in section II. Application Instructions.	8-24 fluid ounces
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Temperature and Humidity

When making applications in low relative humidity, set equipment up to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions

Applications should not occur during a temperature inversion, because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light and variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a connected cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas

The pesticide should only be applied when the potential for drift to adjacent areas, (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, nontarget crops) is minimal (e.g. when wind is blowing away from the sensitive areas). Do not apply **MEPIQUAT CHLORIDE 4.2%** by air if sensitive species are within 200 feet.

GROUND APPLICATION

Spray Volume

• **Water as Diluent:** Use 2 gallons of spray solution per acre in all states except California. In California, use a minimum of 5 gallons of spray solution per acre.

III. ADDITIVES

If rain is expected within 8 hours, use a high-quality EPA-exempt surfactant to make **MEPIQUAT CHLORIDE 4.2%** rain-safe after 4 hours.

Compatibility Test for Mix Components

Add components in the following sequence using 2 teaspoons for each pound or 1 teaspoon for each pint of recommended label rate per acre.

1. **Water** – for 20 gallons per acre spray volume, use 3.3 cups (800 ml) of water. For other spray volumes, adjust rates accordingly. Use only water from the intended source at the source temperature.
2. **Products in PVA Bags** – Cap the jar and invert 10 cycles.

3. **Water-Dispersible Products** – (dry flowables, wettable powders, suspension concentrates, or suspo-emulsions) Cap the jar and invert 10 cycles.
4. **Water-Soluble Products** – (such as **MEPIQUAT CHLORIDE 4.2%**) Cap the jar and invert 10 cycles.
5. **Emulsifiable Concentrates** – (oil concentrate) Cap the jar and invert 10 cycles.
6. **Water-Soluble Additives** – Cap the jar and invert 10 cycles.
7. Let the solution stand for 15 minutes.
8. **Evaluate** the solution for uniformity and stability. The spray solution should not have free oil on the surface, nor fine particles that precipitate to the bottom, not thick (clabbered) texture. Do not use any spray solution that could clog spray nozzles.

IV. MIXING ORDER

1. **Water:** Begin by agitating a thoroughly clean sprayer tank half full of clean water.
2. **Products in PVA Bags:** Rinse the tank thoroughly before adding any material in PVA bags as boron residue will prevent adequate mixing. Place the water-soluble PVA bag into the mixing tank. The water-soluble PVA bag will dissolve in water to allow the contents to disperse. Wait until all water-soluble PVA bags have fully dissolved and the plant regulator is evenly mixed in the spray tank before continuing.
To prepare spray solution for aerial application, use a mixing tank or mixing vat first to get the product into suspension before transferring suspension to air application equipment.
3. **Water-Dispersible Products:** (dry flowables, wettable-powders, suspension concentrates, or suspo-emulsions).
4. **Water-Soluble Products**
5. **Emulsifiable Concentrates**
6. Remaining quantity water.

Only moderate agitation should be used while mixing and transporting.

V. GENERAL TANK MIXING INFORMATION

MEPIQUAT CHLORIDE 4.2% has an aqueous base, and as such, is compatible with most insecticides and miticides. You may combine **MEPIQUAT CHLORIDE 4.2%** with foliar fertilizers if prior experience has shown the original liquid formulation of **MEPIQUAT CHLORIDE 4.2%** to be compatible and noninjurious under your conditions. Always perform a **Compatibility Test for Mix Components** before preparing a tank mix application.

Read and follow the applicable **Restrictions and Limitations** and **Directions for Use** on all products involved in tank mixing. The most restrictive labeling applies to tank mixes.

VI. GENERAL RESTRICTIONS AND LIMITATIONS

- Maximum seasonal use rate: Do not apply more than a **total of 48 fluid ounces (3 pints) of MEPIQUAT CHLORIDE 4.2% plant regulator** (0.132 pounds a.i.) per acre, per season.
- The sum of all products and formulations containing mepiquat chloride must not exceed **0.132 pounds** of mepiquat chloride per acre per season.
- **Preharvest Interval (PHI):** Do not apply within **30 days** of harvest.
- **Restricted Entry Interval (REI): 12 hours**
- Do not plant another crop within 75 days of last treatment.
- **Stress:** Do not apply to cotton plants under severe stress due to adverse weather conditions, mite, insect, or nematode damage, disease, herbicide injury, or fertility stress. If using the low-rate multiple option, discontinue use until the stress is alleviated. Do not apply a single application of 8-16 fluid ounces of **MEPIQUAT CHLORIDE 4.2%** to cotton that is stressed due to lack of soil moisture.
- Do not graze or feed cotton forage to livestock.
- Do not apply through any type of **irrigation** equipment.

Table 3. Restrictions and Limitations

Crop	Minimum Time from Application to Harvest (PHI)	Maximum Rate Per Acre Per Application	Maximum Rate Per Acre Per Season	Livestock Grazing or Feeding	Aircraft Application
Cotton	30 days	24 fluid ounces (1.5 pints)	48 fluid ounces (3 pints)	No	Yes

CONDITIONS OF SALE AND WARRANTY

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of J. Oliver Products, Inc. or Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer. J. Oliver Products, Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above. J. Oliver Products, Inc. makes no other express or implied warranty of fitness or merchantability or any other express or implied warranty. To the extent consistent with applicable law, in no case shall J. Oliver Products, Inc. or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product. J. Oliver Products, Inc. and Seller offer this product and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty**, which may be varied only by agreement in writing signed by a duly authorized representative of J. Oliver Products, Inc..

21-Day Screen Completed by
Contractor

21-Day Expires on 11-25-09

Jacket # 83222-EE
MRID# _____

Content Screen: Recommended to
Pass/Fail

86-5 Review: Passed/Failed/NA

Transfer This Jacket to:

LINDA ARRINGTON

PRIA 2 – 21 Day Content Screen Review Worksheet

(EPA/OPP Use Only)

3/23/09

21 Day Screen Start Date: 11-4-09

Experts In-Processing Signature: MF Harrington Date 11-9-09 Fee Paid: Yes ☒

Division management contacted on issues No ☐ Yes ☐ Date _____

EPA Reg. Number: <u>83222-EE</u>		EPA Receipt Date: <u>11-4-09</u>				
Items for Review				Yes	No	N/A*
1	Application Form (EPA Form 8570-1)(link to form) signed & complete including package type			X		
2	Confidential Statement of Formula all boxes completed, form signed, and dated (EPA Form 8570-4) (Link to form)			X		
	a) All inerts (link to http://www.epa.gov/opprd001/inerts/), including fragrances, approved for the proposed uses (see Footnote A)	yes	no			
		X				
3	Certification with Respect to Citation of Data (EPA Form 8570-34) (Link to form) completed and signed (N/A if 100% repack)			X		
	Certificate and data matrix consistent			X		
	If applicant is relying on data that are compensable, is the offer to pay statement included. (see Footnote B)	yes	no			
	If applicable, is there a letter of Authorization for exclusive use only.					
4	Formulator's Exemption Statement (EPA Form 8570-27) (Link to form) completed and signed (N/A if source is unregistered or applicant owns the technical)			X		
	Data Matrix (EPA Form 8570-35) (Link to form) both internal and external copies (PR 98-5) (Link to PR 98-5) completed and signed (N/A if 100% repack)			X		
5	a) Selective Method (Fee category experts use)	yes	no			
		X				
	b) Cite-All (Fee category experts use)					
	c) Applicant owns all data (Fee category experts use)					
6	5 Copies of Label (link to http://www.epa.gov/oppfead1/labeling/lrm/) (Electronic labels on CD are encouraged and guidance is available)(link to http://www.epa.gov/pesticides/regulating/registering/submissions/index.htm#labels)			X		

7	Is the data package consistent with PR Notice 86-5 (link to PRN 86-5)			X
8	Notice of Filing (link to http://www.epa.gov/pesticides/regulating/tolerance_petitions.htm) included with petitions (link to http://www.epa.gov/pesticides/regulating/tolerances.htm)			X
9	If applicable for conventional applications, reduced risk rationale (link to http://www.epa.gov/opprd001/workplan/reducedrisk.html)			X
10	Required Data (link to http://www.epa.gov/pesticides/regulating/data_requirements.htm) and/or data waivers. See Footnote C.			
	a) List study (or studies) not included with application			

Comments:

- * Inerts are approved for food and non-food use
- * Active ingredient is available in OPP/V
- * All required EPA forms are present and free of errors.
- * No data package is associated with this Submission

MR: N/A

* N/A – Not Applicable

11K

Footnotes

A. During the 21 day initial content review, all CSFs will be reviewed to determine whether all inerts listed, including fragrances, are approved for the proposed uses. If an unapproved inert is identified, the applicant must either 1) resolve the inert issue by, for example, removing the inert, substituting it with an approved inert, submitting documentation that EPA approved the inert for the proposed pesticidal uses, correcting mistakes on the CSF, etc. or 2) provide the data to support OPP approval of the inert or 3) withdraw the application. Removing or substituting an inert ingredient will require a new CSF and may require submission of data. All information, forms, data and documentation resolving the inert issue must have been received by the Agency or the application withdrawn within the 21 day period, otherwise, the Agency will reject the application as described below.

To successfully complete this aspect of the 21 day initial content screen, applicants are **strongly encouraged** to verify that all inert ingredients have been approved for the application's uses **even if a product is currently registered** by consulting the inert Web

site [link to <http://www.epa.gov/oppr001/inerts/lists.html>] and if the inert is not approved, to **obtain the necessary inert approval prior to submitting an application to register a pesticide product containing that inert ingredient**. Some inert ingredients are no longer approved for food uses or certain types of uses. The name and/or CAS number on a CSF must match the name and CAS number on this web site. Simple typographical errors in the name or CAS number have resulted in processing delays.

If an inert is not listed on the inert ingredient web site and the applicant believes that the inert has been approved, the applicant should contact the Inert Ingredient Assessment Branch (IIAB) at inertsbranch@epa.gov and resolve the issue. Copies of the correspondence with IIAB resolving the issue should accompany the application. All new inerts except PIP inerts are reviewed by IIAB. The IIAB should also be contacted for any questions on what supporting data needs to be submitted for and the Agency's inert review process. Questions on PIP inerts should be directed to the Chief of Microbial Pesticides Branch [Link to http://www.epa.gov/oppbppd1/biopesticides/contacts_bppd.htm].

When a brand, trade, or proprietary name of an inert ingredient is listed on a CSF, additional information such as an alternate name of the inert, CAS number or other information [link to <http://www.epa.gov/oppr001/inerts/tips.pdf>] must also be included to enable the Agency to determine if it has been approved. Each component of an inert mixture (including a fragrance) must be identified. In some cases, the supplier of the mixture or fragrance may need to provide this information to the Agency. Prior to the Agency's receipt of an application, applicants must arrange with a proprietary mixture or fragrance supplier to provide the component information to the Agency or promptly upon EPA's request. If the inert ingredients in a proprietary blend (including fragrances) cannot or are not identified or provided within the 21-day content review period, the Agency will reject the application.

During the 21 day content review, applicants should submit information to the individual identified by the Agency when the applicant is informed of an unapproved inert.

Unapproved Inerts Identified on CSFs

All applications except conventional new products and PIPs

Once an unapproved inert is identified on a CSF, the Agency will contact the applicant with the following options:

1. Correct the application by, for instance, correcting the inert's identity or CAS number, providing documentation that the inert has been approved, or removing the unapproved inert from the CSF or replacing it with one that is approved for the application's uses; or
2. Submit the information and data needed for the Agency to approve the unapproved inert. If this option is selected and implemented, the Agency may request an extension in the PRIA decision review timeframe to accommodate the inert review/approval process;

3. Withdraw the application (the Agency retains 25% of the full fee for the fee category estimated); or

If none of these options is selected and implemented by the applicant within the 21 day content review period, the Agency will reject the application and retain 25% of the full fee of the category identified.

Conventional New Product Applications

When the Registration Division identifies an unapproved inert on a CSF with an application for a new product that the applicant has not identified as requiring an inert approval (R311, R312 or R313), it will contact the applicant with the following options:

1. Correct the application by, for instance, correcting the inert's identity or CAS number, providing documentation that the inert has been approved, or removing the unapproved inert from the CSF or replacing it with one that is approved for the application's uses; or
2. Submit the information and data needed for the Agency to approve the unapproved inert, including any required petition to establish or amend a tolerance or exemption from a tolerance. (This option may change the PRIA category for the application, which could require a longer decision review time and a larger fee. If additional fees are due, they must be received by the Agency within the 21 day content review period.)
3. Withdraw the application (the Agency retains 25% of the full fee for the fee category estimated); or

If none of the above options is selected and implemented during the 21-day content-review period, the Agency will reject the application and retain 25% of the appropriate fee for the new product-inert approval category.

PIP Applications

When the Biopesticide and Pollution Prevention Division identifies an unapproved inert on a PIP CSF and a request to approve the inert does not accompany the application, it will contact the applicant with the following options:

1. Correct the application by, for instance, correcting the spelling or name of the inert to that in 40 CFR 174, or providing documentation that the inert has been approved; or
2. Submit the information and data needed for the Agency to approve the unapproved inert. If an inert ingredient tolerance exemption petition is required, the petition must be received by the Agency and the B903 fee paid within the 21 day period. If this option is selected and implemented, the Agency will discuss harmonizing the timeframe for both actions.

3. Withdraw the application (the Agency retains 25% of the full fee for the fee category estimated); or

If none of the above options is selected and implemented during the 21 day content review period, the Agency will reject the application and retain 25% of the fee.

B. A policy on documentation of offers to pay is still being developed, however, for a me-too or fast track (similar/identical) new product, R300 or A530, an application without the necessary authorizations of offers to pay will be placed into either R301 or A531. The Agency recommends that authorizations of offers to pay be submitted with other PRIA applications to avoid delays in the Agency's decision.

C. Biopesticide applicants are advised to contact the Agency and discuss study waivers prior to submitting their application to the Agency. Documentation of such discussions should be submitted with the study waiver.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

November 6, 2009

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

OPP Decision Number: D-422744
EPA File Symbol or Registration Number: 83222-EE
Product Name: MEPIQUAT CHLORIDE 4.2%
EPA Receipt Date: 04-Nov-2009
EPA Company Number: 83222
Company Name: J. OLIVER PRODUCTS, LLC

LAWRENCE A. MILLER
BIOLOGIC, INC.
J. OLIVER PRODUCTS, LLC
115 OBTUSE HILL ROAD
BROOKFIELD, CT 06804-

SUBJECT: Receipt of Registration Application Subject to Registration Service Fee

Dear Registrant:

The Office of Pesticide Programs has received your application and certification of payment. If you submitted data with this application, the results of the PRN-86-5 screen will be communicated separately. During the administrative screen, the Office of Pesticide Programs has determined that this Action is subject to a Pesticide Registration Service Fee as defined in the Pesticide Registration Improvement Act.

The Action has been identified as Action Code: R300

NEW PRODUCT;ME-TOO PRODUCT FAST TRACK;

No additional payment is due at this time.

If you have any questions, please contact the Pesticide Registration Service Fee Ombudsman at (703) 305-6249.

Sincerely, 
Front End Processing Staff
Information Technology & Resources Management Division

Fee for Service

Y
{8618075~

This package includes the following

☒ New Registration

☐ Amendment

☐ Studies? ☐ Fee Waiver?

☐ volpay % Reduction: ____

for Division

☐ AD

☐ BPPD

☒ RD

Risk Mgr.

22

Receipt No.

S-

861807

EPA File Symbol/Reg. No.

83222-EE

Pin-Punch Date:

11/4/2009

☐ This item is NOT subject to FFS action.

Action Code:

Requested:

R 300

Granted:

R 300

Amount Due: \$ **1,365⁰⁰**

Inerts approved. S. Rosh 11/12/09

Parent/Child Decisions:

☒ Inert Cleared for Intended Use

☐ Uncleared Inert in Product

Reviewer: J. Miller

Date: 11/6/09

Remarks:

Receipt for Section 3

S: 861807

Resubmission: ☐ Yes ☒ No

Regulatory Type: Product Registration - Section 3

Fee For Service: ☒ Yes ☐ No

Application Type: New Registration

Billable: ☒ Yes ☐ No

Company: 83222 J. OLIVER PRODUCTS, LLC

V

Risk Manager: Registration Division, Risk Management Team 22

Product #: 83222-EE

Product Name: MEPIQUAT CHLORIDE 4.2%

Override#:

Me Too Section3: 83520-2

Me Too Product Name: MEPIQUAT CHLORIDE 4.2%

Application Date: 30-Oct-2009

OPP Rec'd Date: 04-Nov-2009

Front End Date: 05-Nov-2009

Risk Manager Send Date:

FFS Due Date:

Negotiated Due Date:

OPP Target Date:

Fast Track: ☐

New Ingredient: ☐

Receipt Description: New registration

New Ingredient Request Date:

New Ingredient Received Date:

Form A: ☐ Signature Date:

Form B: ☐ Signature Date:

Receipt Content

CSF

Paper Label

View/Edit

Print Letter

Enter More Information

Tracking

FEE FOR SERVICE

Jane Miller

From: paygovadmin@mail.doc.twai.gov
Sent: Tuesday, November 03, 2009 1:13 PM
To: jmill@biologicconsulting.com
Subject: Pay.Gov Payment Confirmation

THIS IS AN AUTOMATED MESSAGE. PLEASE DO NOT REPLY.

Your transaction has been successfully completed.

Payment Summary

Application Name: PRIA Service Fees
Pay.gov Tracking ID: 24VUV9I5
Agency Tracking ID: 74087114311

Account Holder Name: Jane M. Miller
Transaction Type: Sale
Billing Address: 115 Obtuse Hill Road
City: Brookfield
State/Province: CT
Zip/Postal Code: 06804
Country: USA
Card Type: Visa
Card Number: *****0690
Payment Amount: \$1,365.00
Transaction Date: Nov 3, 2009 1:13:13 PM

Decision Number:
Registration Number:

Online Payment

Step 3: Confirm Payment

1 | 2 | 3

Thank you.

Your transaction has been successfully completed.

Pay.gov Tracking Information

Application Name: PRIA Service Fees

Pay.gov Tracking ID: 24VUV9I5

Agency Tracking ID: 74087114311

Transaction Date and Time: 11/03/2009 13:13 EST

Payment Summary

Address Information	Account Information	Payment Information
Account Holder Name: Jane M. Miller 115 Obtuse Hill Billing Address: Road Billing Address 2: City: Brookfield State / Province: CT Zip / Postal Code: 06804 Country: USA	Card Type: Visa Card Number: *****0690 Decision Number: Registration Number:	Payment Amount: \$1,365.00 Transaction Date 11/03/2009 and Time: 13:13 EST



United States
Environmental Protection Agency
Washington, DC 20460

☒
☐
☐

Registration
Amendment
Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 83222- EE EE	2. EPA Product Manager S. Joyner	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Mepiquat Chloride 4.2%	PM# 20	
5. Name and Address of Applicant (Include ZIP Code) J. Oliver Products, Inc. 3187 Robertson Gin Road Hernando, MS 38632 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. 83520-2 Product Name Mepiquat Chloride 4.2%	

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

This application for a new pesticide product will fall within the category on Table 4 - Registration Division: New Products as published in the August 2008 Federal Register. This product is further defined under EPA No. 300; CR No. 44. J. Oliver Products has permission to cite to the product chemistry studies submitted by Axss USA, LLC and is using the cite-all option under the selective method for any acute toxicity data that may be applicable to this registration action. The PRIA fee for this application is \$1,365.

Jane Miller Tel: (203) 740-1200; Fax: (203) 740-1220; Email: jmill@biologicconsulting.com

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal	
				<input type="checkbox"/> Plastic	
				<input type="checkbox"/> Glass	
				<input type="checkbox"/> Paper	
				<input type="checkbox"/> Other (Specify) _____	
* Certification must be submitted		If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt	No. per container
3. Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 1, 2.5, 5 gal.		5. Location of Label Directions <input checked="" type="checkbox"/> on label	
6. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input type="checkbox"/> Other _____			

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name Jane M. Miller	Title Agent	Telephone No. (Include Area Code) (203) 740-1200	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			6. Date Application Received (Stamped)
2. Signature 	3. Title Agent		
4. Typed Name Jane M. Miller	5. Date October 30, 2009		

AXSS USA, LLC

P.O. Box 337870
Greeley, CO 80633
Tel: (970) 506-0198

October 30, 2009

Ms. Shaja Joyner
Product Manager; PM Team #20
Herbicide Branch; Registration Division (7504P)
Office of Pesticide Programs & Toxic Substances
U.S. Environmental Protection Agency
One Potomac Yard; 2777 South Crystal Drive
Room S-4900, Fourth Floor
Arlington, VA 22202

SUBJECT: Authorization to Rely on Data Submitted by Axss USA, LLC

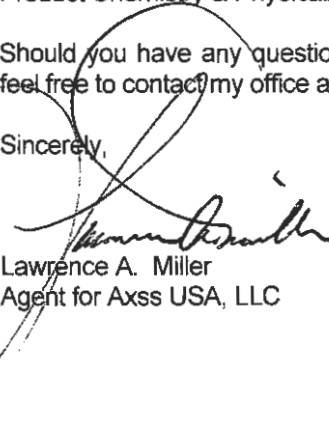
Dear Ms. Joyner:

Axss USA, LLC (AXSS) hereby authorizes the U.S. Environmental Protection Agency (EPA) to refer to data previously submitted by AXSS to support the Application for Pesticide Registration for "Mepiquat Chloride 4.2%" (EPA File Symbol Number 83222-XX) submitted by J. Oliver Products, Inc. J. Oliver Products has cited the following studies on its Data Matrix:

Product Chemistry & Physical/Chemical Properties: MRID 46920101

Should you have any questions concerning this authorization or otherwise wish to reach me, please feel free to contact my office at 203-740-1200.

Sincerely,



Lawrence A. Miller
Agent for Axss USA, LLC



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
401 M Street, S.W.
WASHINGTON, D.C. 20460

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Certification with Respect to Citation of Data

Applicant's/Registrant's Name, Address, and Telephone Number J. Oliver Products, Inc. 3187 Robertson Gin Road Hernando, MS 38632	EPA Registration Number/File Symbol 83222-XX
Active Ingredient(s) and/or representative test compound(s) Mepiquat Chloride	Date October 30, 2009
General Use Pattern(s) (list all those claimed for this product using 40 CFR Part 158) Terrestrial Food	Product Name Mepiquat Chloride 4.2%

NOTE: If your product is a 100% repackaging of another purchased EPA-registered product labeled for all the same uses on your label, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

☐ I am responding to a Data-Call-In Notice, and have included with this form a list of companies sent offers of compensation (the Data Matrix form should be used for this purpose).

SECTION I: METHOD OF DATA SUPPORT (Check one method only)

☐ I am using the cite-all method of support, and have included with this form a list of companies sent offers of compensation (the Data Matrix form should be used for this purpose).

☒ I am using the selective method of support (or cite-all option under the selective method), and have included with this form a completed list of data requirements (the Data Matrix form must be used).

SECTION II: GENERAL OFFER TO PAY

[Required if using the cite-all method or when using the cite-all option under the selective method to satisfy one or more data requirements]

☒ I hereby offer and agree to pay compensation, to other persons, with regard to the approval of this application, to the extent required by FIFRA.

SECTION III: CERTIFICATION

I certify that this application for registration, this form for reregistration, or this Data-Call-In response is supported by all data submitted or cited in the application for registration, the form for reregistration, or the Data-Call-In response. In addition, if the cite-all option or cite-all option under the selective method is indicated in Section I, this application is supported by all data in the Agency's files that (1) concern the properties or effects of this product or an identical or substantially similar product, or one or more of the ingredients in this product; and (2) is a type of data that would be required to be submitted under the data requirements in effect on the date of approval of this application if the application sought the initial registration of a product of identical or similar composition and uses.

I certify that for each exclusive use study cited in support of this registration or reregistration, that I am the original data submitter or that I have obtained the written permission of the original data submitter to cite that study.

I certify that for each study cited in support of this registration or reregistration that is not an exclusive use study, either: (a) I am the original data submitter; (b) I have obtained the permission of the original data submitter to use the study in support of this application; (c) all periods of eligibility for compensation have expired for the study; (d) the study is in the public literature; or (e) I have notified in writing the company that submitted the study and have offered (i) to pay compensation to the extent required by sections 3(c)(1)(F) and/or 3(c)(2)(B) of FIFRA; and (ii) to commence negotiations to determine the amount and terms of compensation, if any, to be paid for the use of the study.

I certify that in all instances where an offer of compensation is required, copies of all offers to pay compensation and evidence of their delivery in accordance with sections 3(c)(1)(F) and/or 3(c)(2)(B) of FIFRA are available and will be submitted to the Agency upon request. Should I fail to produce such evidence to the Agency upon request, I understand that the Agency may initiate action to deny, cancel or suspend the registration of my product in conformity with FIFRA.

I certify that the statements I have made on this form and all attachments to it are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

Signature 	Date Oct. 30, 2009	Typed or Printed Name and Title Jane M. Miller, Agent
---------------	-----------------------	--

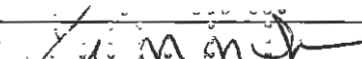
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DATA MATRIX

Date October 30, 2009			EPA Reg. No./File Symbol 83222-XX		Page 1 of 6
Applicant's/Registrant's Name & Address			Product:		
J. Oliver Products, Inc. 3187 Robertson Gin Road Hernando, MS 38632			MEPIQUAT CHLORIDE 4.2%		
Ingredient Mepiquat Chloride					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
830-1550	Product Identity and Composition	46920101	Axss USA, LLC	Perm	
830.1600	Description of Materials Used to Produce the Product	46920101	Axss USA, LLC	Perm	
830-1650	Description of Formulation Process	46920101	Axss USA, LLC	Perm	
830.1670	Discussion of Formation of Impurities	46920101	Axss USA, LLC	Perm	
830.1750	Certified Limits	46920101	Axss USA, LLC	Perm	
830.1800	Enforcement Analytical Method	46920101	Axss USA, LLC	Perm	
830.1900	Submittal of Samples				1
830.6302	Color	46920101	Axss USA, LLC	Perm	
830.6303	Physical State	46920101	Axss USA, LLC	Perm	
830.6304	Odor	46920101	Axss USA, LLC	Perm	
830.6314	Oxidation/Reduction				2
830.6315	Flammability / Flame Extension				3
830.6316	Explosibility				4
830-6317	Storage Stability				5
830-6319	Miscibility				6
Signature 			Name and Title		Date
			Jane M. Miller, Agent		10/30/2009

Based on EPA Form 8570-35 (9-97) Electronic and Paper versions available. Submit only Paper version.

Agency Internal Use Copy

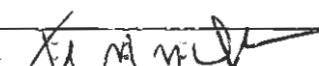
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DATA MATRIX

Date October 30, 2009		EPA Reg. No./File Symbol 83222-XX		Page 2 of 6	
Applicant's/Registrant's Name & Address		Product			
J. Oliver Products, Inc. 3187 Robertson Gin Road Hernando, MS 38632		MEPIQUAT CHLORIDE 4.2%			
Ingredient Mepiquat Chloride					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
830.6320	Corrosion Characteristics				7
830.6321	Dielectric Breakdown Voltage				8
830.7000	pH	46920101	Axss USA, LLC	Perm	
830.7100	Viscosity	46920101	Axss USA, LLC	Perm	
830.7300	Density	46920101	Axss USA, LLC	Perm	
870.1100	Acute Oral Toxicity	Cite-All		PAY	
870.1200	Acute Dermal Toxicity	Cite-All		PAY	
870.1300	Acute Inhalation Toxicity	Cite-All		PAY	
870.2400	Acute Eye Irritation	Cite-All		PAY	
870.2500	Acute Dermal Irritation	Cite-All		PAY	
870.2600	Skin Sensitization	Cite-All		PAY	
The following companies have been sent offer to pay letters:					
			Agricultural Handlers Exposure TF	PAY	
			Macon, MO		
Signature		Name and Title		Date	
		Jane M. Miller, Agent		10/30/2009	

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Agency Internal Use Copy

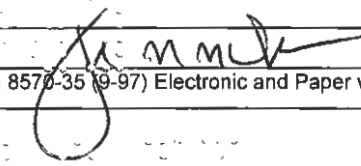
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DATA MATRIX

Date October 30, 2009		EPA Reg. No./File Symbol 83222-XXX		Page 3 of 6	
Applicant's/Registrant's Name & Address		Product:			
J. Oliver Products, Inc. 3187 Robertson Gin Road Hernando, MS 38632		Mepiquat Chloride 4.2%			
Ingredient Mepiquat Chloride					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			Bayer Cropscience LP	Pay	
			Research Triangle Park, NC		
			Generic Endangered Species TF	Pay	
			Gig Harbor, WA		
			BASF Corporation	Pay	
			Research Triangle Park, NC		
			Albaugh, Inc.	Pay	
			Valdosta, GA		
			Spray Drift Task Force	Pay	
			Washington, DC		
			Gowan Pacific Group LLC	Pay	
			Yuma, AZ		
Signature			Name and Title		Date
			Jane M. Miller, Agent		10/30/2009

Based on EPA Form 8570-35 (9-97) Electronic and Paper versions available. Submit only Paper version.

Agency Internal Use Copy

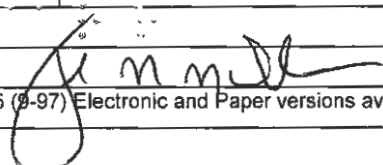
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DATA MATRIX

Date October 30, 2009		EPA Reg. No./File Symbol 83222-XXX		Page 4 of 6	
Applicant's/Registrant's Name & Address		Product			
J. Oliver Products, Inc. 3187 Robertson Gin Road Hernando, MS 38632		Mepiquat Chloride 4.2%			
Ingredient Mepiquat Chloride					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			Outdoor Residential Exposure Task	Pay	
			Washington, DC		
			Agricultural Reentry Task Force	Pay	
			Washington, DC		
			Integrated Farming, Inc.	Pay	
			Raleigh, NC		
			The Hide Group, Inc.	Pay	
			Sardis, MS		
			Loveland Products, Inc.	Pay	
			Greeley, CO		
			Nufarm USA Inc.	Pay	
			Research Triangle Park, NC		
			Arysta Lifescience North America	Pay	
			Cary, NC		
			FIFRA Endangered Species TF	Pay	
			Washington, DC		
Signature 			Name and Title		Date
			Jane M. Miller, Agent		10/30/2009

DATA MATRIX FOOTNOTES

1. **Submittal of Samples:** Not required at this time.
2. **Oxidation/Reduction:** Not applicable. Neither the technical grade active ingredient nor the inert ingredients are considered as strong oxidizing or reducing agents.
3. **Flammability / Flame Extension:** Not applicable. Product does not contain combustible liquids.
4. **Explosibility:** Not applicable. Product is not potentially explosive.
5. **Storage Stability:** Will submit if required by EPA.
6. **Miscibility:** Not applicable. Product is not intended for dilution with petroleum solvents.
7. **Corrosion Characteristics:** Will submit if required by EPA.
8. **Dielectric Breakdown Voltage:** Not applicable. Product is not intended for use around electrical equipment.

(FRONT BOTTLE LABEL)

MEPIQUAT CHLORIDE 4.2%

Plant Growth Regulator

For Use On Cotton

Active Ingredient:

Mepiquat Chloride: N,N-dimethylpiperidinium chloride.....4.2%

Inert Ingredients:.....95.8%

Total.....100.0%

*Equivalent to 0.35 pounds of active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION

See inside booklet for complete **Precautionary Statements** and **Directions for Use**.

EPA Registration Number 83222-XX

EPA Establishment Number XXXXX-XX-XXX

NET CONTENTS:

LOT NUMBER:

Manufactured By:

J. Oliver Products, Inc.

3187 Robertson Gin Road

Hernando, MS 38632

(BOOKLET)

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Caution. Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing.

FIRST AID	
If in eyes:	Hold eyelid open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If swallowed:	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
If on skin or clothing:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Hot Line Number	
Have product container or label with you when calling a poison control center or doctor or going for treatment.	

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistant selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves (such as nitrile, butyl, neoprene and/or barrier laminate)
- Shoes plus socks

Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls Statement

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticide [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of **12 hours**.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material.
- Shoes plus socks.

Storage and Disposal

Do not contaminate water, food or feed by storage and disposal.

Pesticide Storage: Do not store below 32° F or above 100° F. Store in a dry place away from heat or open flame.

Pesticide Disposal: Pesticide wastes are toxic. Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide spray mix, or rinsate is a violation of Federal law. If these wastes cannot be disposed of according to label instructions, contact the state agency responsible for pesticide regulation or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal: Nonrefillable Container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Then offer for recycling, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Containers 5 gallons or less: Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Containers larger than 5 gallons: Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

I. GENERAL INFORMATION

MEPIQUAT CHLORIDE 4.2% is a foliar applied plant regulator that modifies the cotton plant in several beneficial ways. It allows the grower to manage the cotton plant for **short-season production** leading to reduced risk of yield and quality loss due to delayed and prolonged harvest. Additional benefits derived from the use of this product include:

- height reduction and more canopy
- better early boll retention and/or larger bolls
- less boll rot
- improved defoliation
- reduced trash and lower ginning costs
- better harvest efficiency
- darker green leaf color

These benefits can provide for earlier maturity and often result in improved yields.

Spray Coverage

Under most circumstances, water is the recommended diluent, however, oil is permitted in the following states for ultra low volume (ULV) aerial applications: Alabama, Arkansas, Florida, Georgia, Louisiana, Missouri, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas. Refer to **Air** and **Ground Application** sections for spray volumes.

Regardless of method or gallonage of application, thorough coverage of the cotton foliage is required.

Cleaning Application Equipment

Clean application equipment thoroughly using a strong detergent or commercial sprayer cleaner according to the manufacturer's directions before and after applying this product, particularly if a product with the potential to injure crops was used.

II. APPLICATION INSTRUCTIONS

Early Application

On both short-staple and Pima cotton, the grower has the option of low-rate multiple applications (see **Table 1**) or higher, less frequent dosages (see **Table 2**) which greatly facilitates his management flexibility. The multiple application option gives the producer the ability to discontinue usage of **MEPIQUAT CHLORIDE 4.2%** if any significant stresses occur after an earlier application. In such a case, the total quantity of **MEPIQUAT CHLORIDE 4.2%** used over a season may be reduced. If stress is relieved, the grower has the option of continuing treatments with **MEPIQUAT CHLORIDE 4.2%**. In addition, the rate and timing ranges indicated in the **Application Rates and Timings Tables** allow the grower to tailor his usage of **MEPIQUAT CHLORIDE 4.2%** to the degree of vegetative vigor in a given field. In areas where insecticides, miticides or foliar fertilizers are frequently applied, the timings are such that tank mixing is often possible. (See section **VII. General Restrictions and Limitations**).

Fields should be carefully scouted and **MEPIQUAT CHLORIDE 4.2%** should not be applied if plants are under severe stress from weather factors, mite, insect or nematode damage, disease stress, herbicide injury, or fertility stress. In the absence of these stresses, up to 5 low-rate multiple applications can be made each season. After the first application (at matchhead square in the absence of stress), the rate and timing of subsequent applications will depend on vegetative vigor. Under good growing conditions, additional treatments should be made at 7-14 day intervals. However, if new growth at any time is excessive, higher rates of **MEPIQUAT CHLORIDE 4.2%** can be used. If significant loss of squares or young bolls has occurred earlier due to insect pressure or other stresses, but now these stresses have all been alleviated, the need for **MEPIQUAT CHLORIDE 4.2%** is increased – excess vegetative growth is likely because of poor fruit load.

Late Season Application

Late application of **MEPIQUAT CHLORIDE 4.2%** (approximately during the fourth to sixth week of blooming) can provide certain benefits to cotton. However, it should not and does not substitute for early season use – the time of the greatest benefit from the use of **MEPIQUAT CHLORIDE 4.2%**. Late season application can lead to one or more of the following:

- reduction in late season vegetative growth or regrowth after cutout or defoliation
- more complete and manageable cutout
- better defoliation
- earlier maturity
- reduction in trash
- lower ginning costs

Some of these effects may favorably influence the yield potential and fiber quality. A late season application of **MEPIQUAT CHLORIDE 4.2%** should be applied only if fields are not drought or nutrient stressed; that is, those fields likely to experience additional vegetative growth or regrowth. However, fields that are very rank and extremely vigorous due to a combination of poor boll load and excellent growing conditions may not respond as much as desired to late season applications at the suggested rates.

Timing for Late Season Applications

- **On fields where cotton cuts out and then starts regrowth:** Apply when regrowth begins, as evidenced by new leaves in the terminal and stem elongation. This application time is often, but not always, 5-6 weeks after the first bloom.
- **On fields where cotton never completely cuts out:** Apply **MEPIQUAT CHLORIDE 4.2%** when there are 4-6 nodes above the white flower (NAWF). Measure NAWF by counting the number of mainstem nodes from the first position white bloom (the one closest to the mainstem) to the terminal. Count the node with the first position white bloom as zero and the last node in the terminal, which is counted, should have a leaf at least the size of a quarter. Generally, the NAWF first reaches 4-6 nodes during the fourth to sixth week of bloom.

During this time, the NAWF should be decreasing about one node every 5-6 days – if its rate of decrease is less, the plant is not cutting out soon enough (the crop is too vigorous). If the fifth week of bloom arrives and NAWF is still above 5-6, apply **MEPIQUAT CHLORIDE 4.2%**.

Use Rate for Late Season Application

Apply 8-24 fluid ounces of **MEPIQUAT CHLORIDE 4.2%** per acre. Use the lower rate on cotton with only moderate additional growth potential, and the higher rate on fields likely to continue vigorous growth.

AIR APPLICATION

Spray Volume

- **Water as Diluent:** Use a minimum of 2 gallons of water per acre in all states except California. In California, use a minimum of 5 gallons of water per acre.
- **Oil as Diluent:** Use a minimum of 1 quart of oil per acre. When using oil as a diluent, the oil concentrate must contain either a petroleum or vegetable oil base and must meet all of the following criteria:
 - be nonphytotoxic
 - contain only EPA-exempt ingredients
 - provide good mixing quality in the jar test
 - be successful in local experience

The exact composition of suitable products will vary; however, vegetable and petroleum oil concentrates should contain emulsifiers to provide good mixing quality. If the oil does not contain an emulsifier, one must be added during mixing at a volume equal to 3% of the final volume of the mixing tank. Do not apply **MEPIQUAT CHLORIDE 4.2% ULV** without using emulsifiers. Highly refined vegetable oils have proven more satisfactory than unrefined vegetable oils. For additional information, see **Compatibility Test for Mix Components**.

AERIAL APPLICATION METHODS AND EQUIPMENT

Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

1. The distance of the outer most nozzles on the boom must not exceed $\frac{3}{4}$ the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45 degrees. Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the publication titled A Summary of Aerial Application Studies by the Spray Drift Task Force.

Importance of Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying the larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversion section of this label).

Controlling Droplet Size

Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. Use a minimum of 2 gallons of water per acre. Increase water volume to at least 10 gallons of water per acre if grass foliage or crop canopy is dense.

Pressure – Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure. Use up to 40 psi.

Number of Nozzles – Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation – Orienting nozzles so that the spray is released backward, parallel to the airstream, will produce larger droplets than other orientations. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce larger droplets than other nozzle types. Use only diaphragm-type nozzles that produce fan spray patterns.

Boom Length – For some use patterns, reducing the effective boom length to less than $\frac{3}{4}$ of the wingspan or rotor length may further reduce drift without reducing swath width.

Application – Applications should not be made at a height greater than 10 feet above the top of the largest plants. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment

When applications are made with a cross-wind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. Do not apply **MEPIQUAT CHLORIDE 4.2%** by aircraft when wind is blowing more than 10 mph. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

Table 1. Application Rates and Timings: Low Rate Multiple Applications

The times and rates of application have been carefully researched and the **Directions for Use** should be observed as specified below. See section VI. **General Restrictions and Limitations.**

Geographic Area	Time of Application	Fields with Moderate Vegetative Vigor: Rate Per Acre	Fields with High Vegetative Vigor: Rate Per Acre
AL, AR, AZ, CA, FL, GA, LA, MO, MS, NC, NM, OK, SC, TN, TX, VA	First Application: Optimal results will be achieved when plants are in the matchhead square ¹ stage of growth	2 fluid ounces	4 fluid ounces
	Second Application: 7-14 days later, or when regrowth occurs.	2 fluid ounces	4 fluid ounces
	Third Application: 7-14 days later, or when regrowth occurs.	2-4 fluid ounces ²	4-8 fluid ounces ²
	Fourth Application: 7-14 days later, or when regrowth occurs.	2-8 fluid ounces ²	4-12 fluid ounces ²
	Fifth Application (if needed): 7-14 days later, or when regrowth occurs.	4-8 fluid ounces ²	4-12 fluid ounces ²
	Late Season: Refer to Late Season Application of MEPIQUAT CHLORIDE 4.2%	8-16 fluid ounces ²	12-24 fluid ounces ²

¹ Matchhead square is when the first square of a typical cotton plant is 1/8-1/4 inches in diameter. The first application should be applied when 50% of the plants have one or more matchhead squares.

² Use higher rates if previous application was not made or if growing conditions are conducive to vigorous growth.

Table 2. Application Rates and Timing

The times and rates of application have been carefully researched and section **II. Application Instruction** should be observed as specified below. See section **VI. General Restrictions and Limitations**.

Geographic Area	Time of Application	Rate Per Acre
AL, AR, AZ, CA, FL, GA, LA, MO, MS, NM, NC, SC, TN, VA	First Application: Apply MEPIQUAT CHLORIDE 4.2% to actively growing cotton that is 20-30" tall, provided cotton is not more than 7 days beyond early bloom stage (5-6 blooms per 25 row feet). If cotton is 24" tall and has no blooms, apply MEPIQUAT CHLORIDE 4.2% . Use 8-16 fluid ounces per acre on cotton where excessive vegetative growth is not likely to be a problem, and 16 fluid ounces per acre in areas tending to have excessive vegetative growth.	8-16 fluid ounces
	Second Application for Control of Excessive Vegetative Growth: If the cotton field has a history of vigorous growth or if conditions after the first application of MEPIQUAT CHLORIDE 4.2% favor vigorous growth, make a second application 2-3 weeks after the first application.	8-16 fluid ounces
	Third Application for Control of Excessive Vegetative Growth: If the cotton field has a history of vigorous growth or if conditions continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8-16 fluid ounces
	Late Season Application: Refer to Late Season Application in section II. Application Instructions .	8-24 fluid ounces
OK, TX (except Rio Grande Valley)	Areas Where Excessive Vegetative Growth is Not a Problem First Application: Apply MEPIQUAT CHLORIDE 4.2% to actively growing cotton in the early bloom stage (5-6 blooms per 25 row feet). If no blooms are present and the cotton is 20" tall and actively growing, apply MEPIQUAT CHLORIDE 4.2% .	8 fluid ounces
	Second Application: If conditions after the first application of MEPIQUAT CHLORIDE 4.2% favor vigorous growth, make a second application 2-3 weeks after the first application.	8 fluid ounces
	Third Application: If conditions after the second application of MEPIQUAT CHLORIDE 4.2% continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8 fluid ounces
	Late Season Application: Refer to Late Season Application in section II. Application Instructions .	8-24 fluid ounces
OK, TX (including Rio Grande Valley)	Areas Where Excessive Vegetative Growth is a Problem First Application: Apply MEPIQUAT CHLORIDE 4.2% to actively growing cotton that is 20-30" tall, provided cotton is not more than 7 days beyond early bloom stage (5-6 blooms per 25 row feet). If cotton is 24" tall and has no blooms, apply MEPIQUAT CHLORIDE 4.2% .	16 fluid ounces
	Second Application for Control of Excessive Vegetative Growth: If cotton field has a history of vigorous growth, or conditions after the first application of MEPIQUAT CHLORIDE 4.2% favor vigorous growth, make a second application 2-3 weeks after the first application.	8-16 fluid ounces
	Third Application: If conditions after the second application of MEPIQUAT CHLORIDE 4.2% continue to favor vigorous growth, make a third application 1-2 weeks after the second application.	8-16 fluid ounces

	Late Season Application: Refer to Late Season Application in section II. Application Instructions.	8-24 fluid ounces
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Temperature and Humidity

When making applications in low relative humidity, set equipment up to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions

Applications should not occur during a temperature inversion, because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light and variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a connected cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas

The pesticide should only be applied when the potential for drift to adjacent areas, (*e.g.* residential areas, bodies of water, known habitat for threatened or endangered species, nontarget crops) is minimal (*e.g.* when wind is blowing away from the sensitive areas). Do not apply **MEPIQUAT CHLORIDE 4.2%** by air if sensitive species are within 200 feet.

GROUND APPLICATION

Spray Volume

• **Water as Diluent:** Use 2 gallons of spray solution per acre in all states except California. In California, use a minimum of 5 gallons of spray solution per acre.

III. ADDITIVES

If rain is expected within 8 hours, use a high-quality EPA-exempt surfactant to make **MEPIQUAT CHLORIDE 4.2%** rain-safe after 4 hours.

Compatibility Test for Mix Components

Add components in the following sequence using 2 teaspoons for each pound or 1 teaspoon for each pint of recommended label rate per acre.

1. **Water** – for 20 gallons per acre spray volume, use 3.3 cups (800 ml) of water. For other spray volumes, adjust rates accordingly. Use only water from the intended source at the source temperature.
2. **Products in PVA Bags** – Cap the jar and invert 10 cycles.

3. **Water-Dispersible Products** – (dry flowables, wettable powders, suspension concentrates, or suspo-emulsions) Cap the jar and invert 10 cycles.
4. **Water-Soluble Products** – (such as **MEPIQUAT CHLORIDE 4.2%**) Cap the jar and invert 10 cycles.
5. **Emulsifiable Concentrates** – (oil concentrate) Cap the jar and invert 10 cycles.
6. **Water-Soluble Additives** – Cap the jar and invert 10 cycles.
7. Let the solution stand for 15 minutes.
8. **Evaluate** the solution for uniformity and stability. The spray solution should not have free oil on the surface, nor fine particles that precipitate to the bottom, not thick (clabbered) texture. Do not use any spray solution that could clog spray nozzles.

IV. MIXING ORDER

1. **Water:** Begin by agitating a thoroughly clean sprayer tank half full of clean water.
2. **Products in PVA Bags:** Rinse the tank thoroughly before adding any material in PVA bags as boron residue will prevent adequate mixing. Place the water-soluble PVA bag into the mixing tank. The water-soluble PVA bag will dissolve in water to allow the contents to disperse. Wait until all water-soluble PVA bags have fully dissolved and the plant regulator is evenly mixed in the spray tank before continuing.
To prepare spray solution for aerial application, use a mixing tank or mixing vat first to get the product into suspension before transferring suspension to air application equipment.
3. **Water-Dispersible Products:** (dry flowables, wettable-powders, suspension concentrates, or suspo-emulsions).
4. **Water-Soluble Products**
5. **Emulsifiable Concentrates**
6. Remaining quantity water.

Only moderate agitation should be used while mixing and transporting.

V. GENERAL TANK MIXING INFORMATION

MEPIQUAT CHLORIDE 4.2% has an aqueous base, and as such, is compatible with most insecticides and miticides. You may combine **MEPIQUAT CHLORIDE 4.2%** with foliar fertilizers if prior experience has shown the original liquid formulation of **MEPIQUAT CHLORIDE 4.2%** to be compatible and noninjurious under your conditions. Always perform a **Compatibility Test for Mix Components** before preparing a tank mix application.

Read and follow the applicable **Restrictions and Limitations** and **Directions for Use** on all products involved in tank mixing. The most restrictive labeling applies to tank mixes.

VI. GENERAL RESTRICTIONS AND LIMITATIONS

- Maximum seasonal use rate: Do not apply more than a **total of 48 fluid ounces (3 pints) of MEPIQUAT CHLORIDE 4.2% plant regulator** (0.132 pounds a.i.) per acre, per season.
- The sum of all products and formulations containing mepiquat chloride must not exceed **0.132 pounds** of mepiquat chloride per acre per season.
- **Preharvest Interval (PHI):** Do not apply within **30 days** of harvest.
- **Restricted Entry Interval (REI): 12 hours**
- Do not plant another crop within 75 days of last treatment.
- **Stress:** Do not apply to cotton plants under severe stress due to adverse weather conditions, mite, insect, or nematode damage, disease, herbicide injury, or fertility stress. If using the low-rate multiple option, discontinue use until the stress is alleviated. Do not apply a single application of 8-16 fluid ounces of **MEPIQUAT CHLORIDE 4.2%** to cotton that is stressed due to lack of soil moisture.
- Do not graze or feed cotton forage to livestock.
- Do not apply through any type of **irrigation** equipment.

Table 3. Restrictions and Limitations

Crop	Minimum Time from Application to Harvest (PHI)	Maximum Rate Per Acre Per Application	Maximum Rate Per Acre Per Season	Livestock Grazing or Feeding	Aircraft Application
Cotton	30 days	24 fluid ounces (1.5 pints)	48 fluid ounces (3 pints)	No	Yes

CONDITIONS OF SALE AND WARRANTY

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of J. Oliver Products, Inc. or Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer. J. Oliver Products, Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above. J. Oliver Products, Inc. makes no other express or implied warranty of fitness or merchantability or any other express or implied warranty. To the extent consistent with applicable law, in no case shall J. Oliver Products, Inc. or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product. J. Oliver Products, Inc. and Seller offer this product and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty**, which may be varied only by agreement in writing signed by a duly authorized representative of J. Oliver Products, Inc..

